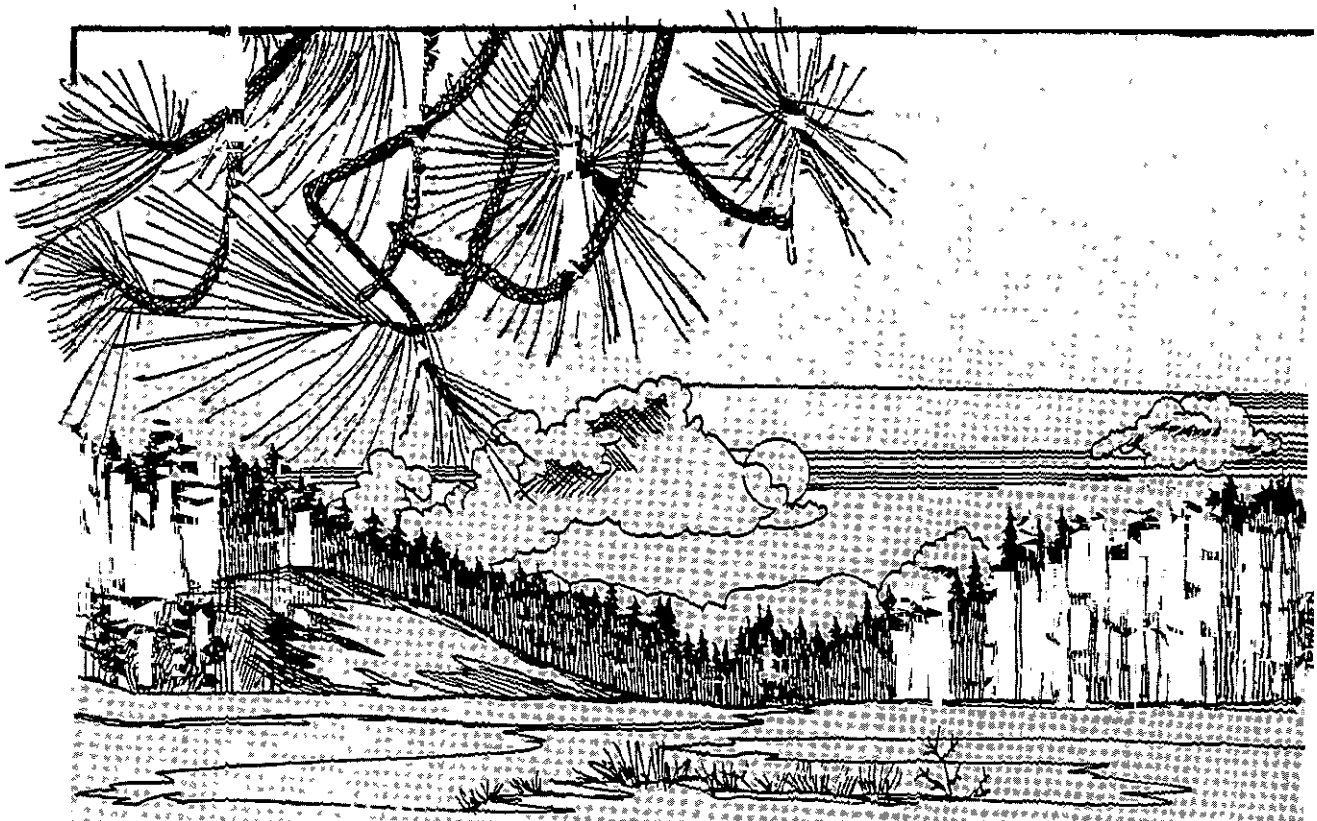
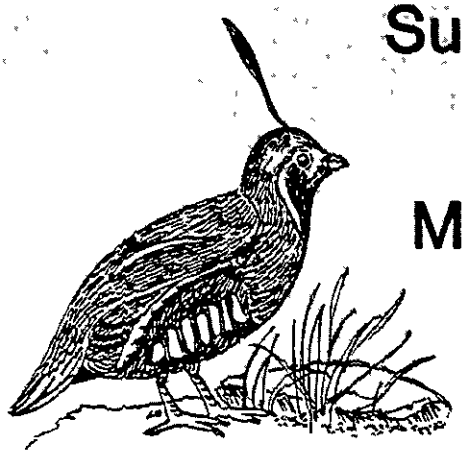


CHAPTER III

Summary of the Analysis of the Management Situation



CHAPTER III

ANALYSIS OF THE MANAGEMENT SITUATION - SUMMARY

INTRODUCTION

The analysis of the management situation is an assessment of the economic, social, and resource capabilities of the Mendocino National Forest, and the demands placed on these resources. This Chapter of the Plan summarizes the analysis of the management situation completed during one of the earlier steps in the planning process, however, it also reflects changes in the management situation due to the decisions to implement the Preferred alternative described in the FEIS. The complete analysis of the management situation is on file at the Forest Supervisor's Office, Willows, California.

THE ECONOMIC ENVIRONMENT

The Mendocino National Forest lies within a six-county area which encompasses 8,576,000 acres, of which this Forest's lands comprise about 10.4% (894,399 acres).

Discussion of the economic and social environment within this Forest's zone of influence focuses on five counties: Tehama, Glenn, Colusa, Lake, and Mendocino. While Trinity county is within the Mendocino's zone of influence, this Forest has virtually no impact. Trinity County is dependent on federal agencies and their programs, however, the Mendocino National Forest occupies only about 3.7% of Trinity County's landbase, and most of that is within the Yolla Bolly-Middle Eel Wilderness.

Timber, livestock, and agriculture have traditionally provided the economic base of the five counties on which this discussion focuses. Continuing immigration has not changed the rural character of these counties, as new residents are mostly retirees or emigrants from urban areas who have chosen a rural life-style. Current rates of economic growth are not adequate to sustain current and projected rates of population growth. Local economies are becoming more service-dependent, and unemployment is high.

On the eastern side of the Forest in Colusa and Glenn Counties, agriculture is dominant, and the economy is independent of the Forest. The timber industry in Glenn County provides economic diversity for the county, but not economic growth. Tehama County, which extends northeast from the Forest, has both timber and agriculture, but government agencies provide the primary employment. Only in Glenn County is any significant portion of the land base (22%) occupied by the Forest. About 43% of the Forest falls within counties which extend to the east.

Mendocino County, on the west, is the largest of the five counties. Although 20% of the Forest is within Mendocino County, only 8% of this county's landbase consists of National Forest land. As of 1990, lumber processing was still an important part of the economic base in Mendocino County. However, the county as a whole is not dependent on the Mendocino National Forest, which supplies only a small proportion of its total timber supply.

Lake County, which extends southwest from the Forest, is the fastest growing and least commodity-oriented of the five counties. Economic growth is in retail trade and services, reflecting both tourism and the influx of retirees. About 29% of the Forest occupies 32% of the Lake County land base.

National Forest timber programs in the 1990's cannot continue to play the same economic role in communities within the Mendocino's zone of influence, as those programs did in the 1980's During the 1980's, timber management programs were the strongest economic link between the Mendocino

National Forest and local counties. However, that situation began to change toward the end of the 1980's, with the listing of the northern spotted owl as a threatened species, and with the rise of other values and uses of National Forests.

Such declines cannot be offset by increased harvesting on other National Forests or other ownerships, given recent and pending legislation, recent lawsuits, and increased regulation of private timber harvesting. In fact, timber supply levels during the 1990's from all National Forests in northwestern California are projected to decline by an average of 50-60%. Recent closures of isolated mills and consolidation of milling activity into major milling centers are further indications that none of the local communities which have historically depended on Mendocino National Forest programs will continue to do so in the 1990's. The mill at Covelo (Mendocino County) operated only sporadically during 1991, and it is now dismantled. Crane Mills of Paskenta (Tehama County) has also recently closed. (For further information, see Appendix J "Regional Timber Supply and Demand, found in the Land and Resource Management Plan Environmental Impact Statement.)

Recreation opportunities on the Forest also contribute to local economies. Expanded opportunities, especially in the development of water-oriented facilities will benefit tourism in Lake, Mendocino, and Tehama counties

Forest contributions to the local economy include direct and induced employment, the availability of land for use at less than market value, and distribution of 25% of all Forest receipts among local counties. Since 1991, payments to counties within the range of the northern spotted owl have been adjusted in the annual Appropriations Act to offset the sudden dramatic reductions in payments due to the reductions in timber harvest to protect the owl. Total payments to counties from the Mendocino have ranged from 3.02 million dollars in 1991 to 2.45 million dollars in 1994. However, as a measure of receipts collected, payments to the six counties ranged from 45% of the total receipts collected in 1991 to 100% of total receipts in 1993 and 1994. During the five years from 1985 through 1989, total Forest receipts averaged 11.5 million dollars per year, of which timber accounted for 96.7% Twenty-five percent of this was distributed to the six counties within which the Forest lies. Approximately 3-4% of employment in the area has been Forest-related during the 1980's. Direct employment during the 1980's has probably been about 820-940 person years; indirect and induced employment has been about 1,150-1,300 person years. Approximately 60% of all Forest-related employment has been due to timber management programs and activities.

THE SOCIAL ENVIRONMENT

Analysis of the social environment within the zone of influence of the Mendocino National Forest is based on the identification of social groups which react similarly to Forest Service policies and programs. The social groups identified for this analysis are: long-time residents, newcomers, Native Americans, nonresident recreationists, and private and public sector employees who reside in the area.

Long-time Residents

Each county within the zone of influence has a number of prominent families who have resided in the area for many years. Often these families control a great deal of land through their operation of farms or ranches Some long-time merchants in the area are also included in this group. Because of their length of residence and civic involvements, these people are often informal leaders in their communities. These families are generally concerned with the future of the area and would like to see it prosper. These families often represent stability, desire controlled growth, and seek carefully scrutinized progress for the community. Because of their history of involvement, many of these people expect to be listened to closely when decisions are made.

The long-time resident families engaged in farming and ranching often approach their work with the land from a stewardship orientation and view the land itself as a resource, as opposed to a

commodity. The farmer can be very supportive of land use planning which protects agricultural land from intrusive and incompatible development. This orientation can change, however, if it appears that no one will continue to farm the land, or that it may become more valuable for other uses.

What this indicates is that the views of the "farming family" toward Forest Service management can vary, depending on individual circumstances. In general, farm families are not as impacted by Forest Service decisions as are ranching families. Local ranchers often rely on Federal land for livestock grazing and have more of a commodity orientation. Management decisions relating to the availability and use of the National Forest can have a direct impact on these ranchers.

The orientation of the long-time merchant families cannot be as clearly defined. What the merchant families may share with the other long-time residents is an interest in established patterns of use of the Forest. Changes in management which affect these patterns are expected to be viewed with concern.

Many of the long-time residents, because of their length of residence and history of involvement, feel they have the benefit of experience and a greater understanding of the local situation than "outsiders" could ever acquire. When conflicts between local, regional, and national interests arise, long-time residents may feel that local interests should prevail.

Newcomers

Several of the counties within the zone of influence are experiencing a rapid influx of persons of retirement age. These people come from areas south of the Forest, including the San Francisco Bay area and southern California. Retirees are seeking a relaxed, rural atmosphere. Many would like enough land so they can raise a portion of their food. A number of rural subdivisions have been developed to accommodate the housing needs of these people.

People of retirement age are not the only ones "retiring" from the urban lifestyle. Particularly on the west side of the Forest, there are significant numbers of young and middle-aged people coming into the area to escape the urban environment. While some of these people settle into the incorporated communities and find or make jobs for themselves, others move into an even more rural lifestyle, including "living off the land." Some members of this group (newcomers) become active in their new communities, particularly on social issues. Others create new businesses -- "cottage industries" -- and are involved through their enterprises.

As a group, retirees cannot be categorized according to their dominant social interests. Some general observations can be made which indicate a possible response to management issues For the most part, retirees will be independent of the local economy, depending instead on transfer payments, pensions, etc., for their income Forest Service actions that affect the local economy will be important to them, as these actions affect such things as local taxes, the value of investments in property, or the quality and availability of social and recreational services.

Many of these people are attracted to the area because of its rural nature, including the relative accessibility of such pursuits as fishing and hunting. Thus, management decisions which affect the recreational opportunities of the Mendocino National Forest can be expected to be of interest to the retirees, perhaps in a more direct way than those issues which have direct economic impact on the community.

The younger people who are motivated to move into the area in search of a particular lifestyle can be identified according to their social values with a greater degree of certainty than other social groups. For many of these people, their primary interest is in noncommodities, ecology, and the preservation of nature. They are deliberately choosing what they view as a more ecologically conscious lifestyle and have sometimes made dramatic changes to live in accord with their principles.

Members of this group are active participants in management decisions on the Forest Their involvement will not necessarily be limited to those issues which directly affect them, but may address issues of principle, such as clearcutting, the use of chemical treatment measures, wilderness preservation, etc.

Native Americans

The largest concentration of Native Americans near the Forest is at the Round Valley Indian Reservation in the Covelo area. More than 500 people live on the Reservation and a few more reside off the Reservation but within the Round Valley area. Through the 1980's, about 30 Indians were employed at the lumber mill in Covelo, which was one of the main employers in Round Valley. However, operation of this mill was sporadic during 1991 and has been permanently shut down

Another significant concentration of Native Americans is at the Grindstone Rancheria near the town of Elk Creek in Glenn County. Although the Reservation is only six miles east of the Forest boundary, timber management practices have had little effect on Grindstone residents, since the Elk Creek lumber mill closed. Some management activities such as vegetative manipulation and habitat management could have an indirect effect on Reservation residents, if those activities changed historic patterns of water runoff into Grindstone Creek or the availability of game animals for hunting.

The cultural background of the American Indians includes a strong sense of land stewardship. Land was used to sustain life through the harvest of plants and animals. Many Indians in the vicinity of the Mendocino National Forest continue to have economic ties to the land. Some, such as the mill workers in Round Valley, relied on it for their economic livelihood Others may use certain areas of the Forest as their ancestors did -- to hunt, fish, or gather plants.

Some of the Yuki, Nomlaki, Pomo, Patwin, Huchnom, and others living near the Forest may have heritage and traditional ties to specific areas or sites. Some of these areas may retain traditional spiritual values, while others may be culturally important as evidence of past heritage Forest management activities must be sensitive to the potential impacts on such areas and sites, because of their heritage value.

Private and Public Sector Employees

The timber industry employs a significant number of people in areas adjacent to the Forest, particularly on the western side. While there are timber workers in areas which border the eastern edge of the Forest, many agricultural workers also live immediately east of the Forest. Timber and agricultural workers, along with their families, tend to have close ties to the land. Considerable overlap may exist between this group and Long-Time Residents.

Other major sources of employment in the area include services, retailing, and government (public administration). Workers in these sectors do not tend to be associated as closely with the resource base (with the exception of resource agency employees), and may not be as firmly entrenched in the area as some of the other social groups. They may also be in occupations where transfer is common between geographical areas. As with timber and agricultural workers, this group may overlap with other social groups.

In counties and communities where lumber processing is important to the local economy, workers tend to be concerned about forest productivity, whether they are directly employed in the timber industry or not. Residents of timber dependent communities are generally aware of the importance of the industrial sector and its influence on all segments of their community. Thus, all workers have an interest in the economics of timber production, although some more directly than others However, such economic interest may not always coincide with other personal values such as those relating to natural resources and the environment.

Aside from economics, few general statements can be made about this segment of the population affected by management of the Mendocino National Forest. As with retirees, personal philosophies and attitudes will be diverse and will often depend on factors other than employment status.

Non-resident Recreationists

While visitors to the National Forest are not residents within the immediate zone of influence, their personal values and expectations are a legitimate factor in the analysis of the social environment for forest management. The majority of visitors to the Mendocino National Forest are recreationists such as hunters, anglers, hikers, campers, and off-highway-vehicle users. The majority of them come from urban areas around San Francisco Bay and Sacramento While the Forest may lack some of the outstanding physical attributes found in other areas, it has virtues of proximity and accessibility for recreationists from these large urban areas. In addition it is not a highly developed or overused recreation area. These attributes often attract people whose intended uses of the Forest conflict either with the uses of other visitors or with historical uses by residents.

Urban visitors to the Mendocino National Forest will be concerned with management decisions which affect their particular use of the Forest. Urban visitors have a wide range in interests and social values. Some seek recreational experiences which emphasize solitude, self-reliance, and remoteness; they will tend to share a value system based on nonconsumptive uses and preservation. Others seek open space and challenging terrain where they can ride off-highway-vehicles or go hang-gliding. This latter group of visitors tend to have values and attitudes toward Forest management which are at odds with simple preservation. Thus, conflicts over management decisions may be expected, not only among various groups of recreationists, but also between visitors and residents.

Apart from concerns which directly affect their use, visitors may also become involved in other National Forest management issues. This is particularly true of those who share a noncommodity, preservationist philosophy. Visitors oriented toward preservationist goals may feel an increased need to express their opinions, based on a belief that such opinions are under-represented among resident groups. This perception may stem, in part, from the view that residents are linked too closely to the Forest via economics to represent the noncommodity values.

RESOURCE ENVIRONMENT

AIR QUALITY

The Mendocino National Forest is within the Sacramento Valley, Lake County, and North Coast Air Basins. Air quality within the Forest is high due to the Forest's remoteness from large urban population centers, the elevations within the Forest, and the prevailing winds over the Forest.

The goals and objectives for management of air quality are to maintain air quality which adequately protects National Forest resources and which meets or exceeds applicable Federal, State, and/or local air quality standards and regulations. The Forest contains one Class I air quality area, the Yolla Bolly-Middle Eel Wilderness. The remainder of the Forest, including the newly created Snow Mountain Wilderness, is classified as a Class II area.

The Sacramento Valley is designated as a "smoke sensitive" area up to an elevation of 3,000 feet. In Lake County, the portion of the Forest visible from Clear Lake is managed in a manner similar to a smoke sensitive area even though the area lacks the formal designation. This is being done since the majority of the population of Lake county is centered around Clear Lake and air quality is an important issue in this popular recreation area.

Air Quality Resource Values are currently being developed for the Yolla Bolly-Middle Eel Wilderness Visibility, aquatic ecosystems, water quality, and plant biodiversity will likely be the key air quality resource values to monitor and protect. Background measurements on aquatic ecosystems and water quality have begun in the Sacramento River drainage area, and visibility monitoring is under way in the Middle Fork of the Eel River portion of the Yolla Bolly-Middle Eel Wilderness.

The role of the Forest in Prevention of Significant Deterioration reviews is to insure that each applicable implementation plan contains emission limitations and other measures that may be necessary to prevent significant deterioration of air quality.

Wildfire can be a major contributor to air quality degradation Forest management activities which have the potential to degrade air quality include prescribed burning, vehicle use, and equipment operation. Most effects are localized and of short duration, and prescribed burning is conducted in accordance with local Air Pollution Control District regulations for the timing and acreage to be burned. Since air quality is a growing management and public concern, future air quality control standards may limit the amount of prescribed burning within the Forest.

CHAPARRAL MANAGEMENT

Chaparral is the dominant vegetation type on approximately 213,000 acres of the land base of the Mendocino Chaparral areas are dynamic plant communities characterized by relatively frequent wildfires. Many plant communities found in chaparral are dependent on fire to maintain their productivity and diversity. The types and approximate acres of chaparral types on the Forest are presented below.

Chaparral Type	*Acres*	*Percent*
Shrub hardwoods	92,000	43%
Chamise	64,000	30%
Mixed shrubs	30,000	14%
Manzanita	12,000	6%
Wilderness (all chaparral types)	15,000	7%

Much of the chaparral area is managed in cooperation with other Federal, State, and local agencies and private landowners under Coordinated Resource Plans. The major objectives of the chaparral management program are:

1. Reduced threat of catastrophic wildfire.
2. Improved wildlife habitat conditions and plant diversity.
3. Increased grazing capacity of the range
4. Increased water quantity.
5. The development of an interactive network among the Forest Service, special interest groups, and cooperating agencies.

There has been some interest in using chaparral as a biomass fuel. The Forest will continue to cooperate with industry and research to find ways to convert chaparral to biomass use.

Of the 137,850 acres of chaparral tentatively suitable for prescribed burning, approximately 106,990 acres are considered suitable for management by periodic prescribed burning with the long-term goal of bringing the chaparral vegetation under management on a 20-year cycle. During the period 1988-1990, the Forest treated an average of 893 acres of chaparral annually. However, an average of 3,986 acres per year of chaparral were treated during the 10-year period of 1980-1989. The primary reason for the large difference between the recent accomplishment and the 10-year average is the

significant reductions in funding for this program during this period as part of an overall reduction in the fire management program However, it is expected that the fuels management program will be restored to a level close to the previous 10-year average. Currently, 23% of the chaparral is in the 0-5 year age class, 24% within the 6-15 year class, and 53% is over 15 years. Prescribed burning, the primary chaparral management technique used, provides benefits which meet management objectives and are responsive to public issues. Among these benefits are·

1 The program benefits primarily deer and small game, but also a threatened and endangered species, peregrine falcon, by expanding and improving its prey species habitat.

2. Livestock forage can be increased through earlier green-up of perennial grasses and through weed control.

3 Watersheds are protected as erosion is minimized through adequate aerial and ground cover, ground water flow is increased, and losses from wildfire are reduced.

4 Air quality impacts from smoke are less than from wildfire and can be controlled by following local Air Pollution Control District regulations for atmospheric condition and acreage burned.

5. Recreation opportunities would expand as areas previously covered by dense brush fields would be more accessible.

Smoke from prescribed burning is an increasingly important management and public issue Future revisions of air quality standards may reduce the amount of prescribed burning of chaparral.

In August, 1987, a number of lightning storms covered most of Northern California starting an unprecedented number of fires. The Mendocino National Forest received more lightning fires than in recorded history As a result, more than 60,000 acres within the Forest were burned, including about 6,400 acres of chaparral In other fires during 1985-89, 17,150 acres of chaparral burned Thus, an average of about 4,700 acres per year of early seral stage chaparral was created by wildfire during 1985-89. Thus, existing levels of diversity within the chaparral type, as indicated by base year acreages of the early seral stage, would be very difficult to maintain, without either an unprecedented amount of prescribed burning, or a continuation of large destructive wildfires within the chaparral type.

DIVERSITY

It is generally accepted that the diversity of wildlife and fish is closely related to the diversity of the vegetation. For example, as vegetation shifts toward early successional stages, the number and species of wildlife dependent on early successional stages would be expected to increase. Maintenance of diversity within the Forest helps to achieve the following conditions:

- maintenance of biological and genetic diversity
- maintenance of viable populations of existing native species
- increased aesthetic value by providing structural variety in the landscape
- reduced size and intensity of wildfire

Past fire exclusion and prevention policies have resulted in a shift toward mid and late successional stages of chaparral communities and declining early successional stages In recent years, however, chaparral management programs have been reversing this trend in areas available for management.

Intensive timber management practices, including regeneration harvesting, have contributed to a shift from older age stands to early successional stages within forested ecosystems. In addition, approximately 3,600 acres of late seral stage forest were lost during the 1987 fire siege on the Mendocino National Forest. Intensive timber management and fuelwood cutting have also reduced some components of the forested ecosystems, such as snags and dead-and-down woody material.

The acreage in late seral stage forest stands is expected to increase as a result of the establishment of Late Successional Reserves (LSRs), a part of the overall strategy for managing for the recovery of the northern spotted owl. Approximately 36,700 acres of late seral stage forest are currently located within LSRs on the forest.

Numerous meadows and glades are distributed throughout the Forest, especially at higher elevations Wet and dry meadows on the Forest tend to be composed of predominately perennial species and are found at the higher elevations (4800+ feet). Glades are generally composed of annual grasses and are found at low to moderate elevations (1500-4800 feet). These areas are important sources of food and water for a wide variety of wildlife species. Improper grazing management in the high elevation meadows during the summer can result in changes in vegetative composition and suitability of these habitats for various wildlife species.

Riparian areas are some of the most productive, sensitive, and diverse ecosystems on the Mendocino National Forest. These areas provide important habitats for many wildlife species such as black-tailed deer, bald eagle, and northern spotted owl. Some wildlife species require riparian areas for all aspects of their life, while others utilize riparian areas for a specific activity such as dispersal or foraging Riparian habitats have high wildlife values because cover, forage, and water are provided within close proximity to each other.

Within coniferous forest types (mixed conifer, red fir), old growth conditions are present within a portion of the total area in late seral stages. Late seral stages include seral stages 4a, 4bc, and 4c+ (see Table 3-3 found in the final Environmental Impact Statement). Seral stage 4c+ most closely approximates old growth conditions, in terms of numbers of large trees per acre, percent crown closure, multi-layered tree canopies, snags and down log components. Stands within the 4bc seral stage constitute another portion of the total area in late seral stages, which is at a stage of development that approaches old growth conditions Throughout most of the Forest, 4bc and 4c+ stands tend to be distributed in noncontiguous patches varying in size from a few acres to 1,000+ acres in a few locations

FACILITIES

The Mendocino National Forest constructs and maintains facilities necessary to support Forest resource management programs. These facilities are of two types· transportation and structures Transportation facilities include the Forest road and trail systems. The trail system which supports recreation use is discussed in the Recreation section of this chapter. Structures include buildings, dams, bridges, communications systems, etc

Transportation:

The Forest Service currently manages 2,463 miles of roads for resource, recreation, and Forest administration uses. Due to the highly unstable nature of many areas within the Forest and past road design and location practices, it is expected that portions of the existing road system will require reconstruction to meet changing management requirements, accommodate increased traffic, minimize environmental damage, and improve user safety. An estimated 90 miles of uninventoried roads on the Forest could be added to the system, closed to use, allowed to revert to a natural condition, or obliterated. It is expected that as many as 350 miles of local road built for timber management purposes may be closed to use within Late Successional Reserves.

With the exception of a portion of Forest Highway 7, and portions of the Paskenta-Mendocino Pass and Paskenta-Eel River roads, the vast majority of the Forest roads have a native soil surface. Upgrading of road surfaces from native soils to crushed rock and from crushed rock to pavement, where it might prove environmentally or economically beneficial, needs to be evaluated on a case-by-case basis

There are two separate areas within the Forest where cost-share agreements have been developed between the Forest Service and major private landowners within the boundary of the Forest for construction and maintenance of Forest roads.

Forest highways are specially designated routes under the jurisdiction of State or Counties which provide a safe and adequate link to the Forest Development Road System. Designated Forest Highways on the Forest are displayed in Table 3-1.

Structures and Administrative Sites.

The Forest owns 152 buildings, many of which are in need of major repair or replacement. The majority of substandard buildings are those built as temporary quarters over 30 years ago or conversion of 50-year old houses to crew quarters. In either case, they are lacking in energy efficiency, handicap access and equal gender requirements. As opportunities arise and to the extent funds are available, these buildings will be retrofitted to meet safety and energy efficiency requirements or eliminated.

Table 3-1
DESIGNATED FOREST HIGHWAYS

FH Rt#	*Road*	*Length*	*From*	*To*
#7	Mendocino Pass	59.0	State Highway #162	Covelo
#161	Round Valley	12 0	Paskenta	Tehama Co Rd 55 south
#163	Elk Creek	19.0	Stonyford	State Highway #162
#164	Elk Mountain	27.3	State Highway #20	Scott Dam Bridge
#166	Fouts	8 9	Stonyford	Fouts Boys Ranch
Total		126.2 Miles		

Thirteen of the 32 administrative sites which existed during the 1989 base year will be closed by the end of the first decade, for more efficient management of Forest resources and programs. These thirteen administrative sites are: Thomes Pocket, Wilder, Bear Creek Station, Elk Mountain, Bartlett Flat Work Center, Plaskett Station, Sanborn Cabin, Kill Dry Trailer Camp, Ivory Mill Camp, Pacific Ridge, Ice Springs, Green Springs and Indian Dick.

FIRE AND FUELS

Fire protection within and adjacent to the Mendocino National Forest is provided through cooperative agreements for mutual aid between the Forest Service, the California Department of Forestry and Fire Protection, and local fire districts. The Mendocino has fire protection responsibility for the 894,399 acres of National Forest Land, for the 185,572 acres of private and public agency land within the Forest's boundaries, and responds to fires outside the boundary that threaten the Forest. The California Department of Forestry and Fire Protection provides protection for 11,031 acres within the total protection boundary through a cooperative agreement

In addition to fire protection agreements, Coordinated Resource Plans for fuels management have been instituted. The extensive chaparral management of the last ten years is believed to have increased the effectiveness of fire suppression efforts.

From 1981 through 1990 there were 14 major fires on the Mendocino National Forest. An average of 54 fires burned an average of 9,504 acres each year. Thirty-three percent of the fires were human-caused but were responsible for only 9% of the acreage burned. During the previous decade, 41% of

the fires were human-caused, which represented 99% of the acreage burned. All wildfires, including naturally occurring unplanned ignitions, receive an appropriate suppression response of confine, contain, or control.

In August, 1987 a series of lightning storms started an unprecedented number of lightning fires throughout northern California. The Mendocino National Forest experienced more fire starts in a two day period than ever before in recorded history. Fire fighting resources were stretched beyond the limits to handle all the fires As a result, this Forest, as well as other northern California Forests, experienced a number of large wildfires. Over 60,000 acres within this Forest were burned. The largest fires were the Mendenhall Fire of approximately 60,000 acres, including significant acreage outside the National Forest boundary, and the Fouts Fire of about 18,000 acres. Several smaller fires contributed to the total burned acreage in the Forest. Of the 60,000 acres on the Mendenhall Fire, approximately 30,400 acres were National Forest land, with the remaining acreage in private ownership or under the administration of the Bureau of Land Management. On the Fouts fire, about 14,450 acres of National Forest Land burned, including approximately 2,200 acres within the Snow Mountain Wilderness.

It is estimated that on the National Forest lands which were burned, the vegetation on over 50% of the area was completely consumed, while vegetation on the remainder of the area received moderate to light damage.

Fire is a naturally occurring ecological force on chaparral and forested lands, and plays a key role in the evolution of plant and animal communities Since about 1933 Forest Service policy has required that suppression efforts be directed to minimizing fire size. Under this policy, all-out suppression strategies are employed to achieve control within the first working period. Subsequent efforts are directed to achieve control within each successive working period As a result, fire was partially eliminated as a natural force and changes in vegetation occurred over time.

Fifty years of aggressive fire suppression and inadequate treatment of logging slash, has accelerated the accumulation of fuels and created extreme fire hazards in some areas. Although requirements for treating logging slash are currently more stringent, vegetative growth and natural fuel deposition still pose a threat. Dead brush accumulations in plantations are also a problem

While it is believed that bringing the chaparral fuel type under management through prescribed burning will reduce the chance of catastrophic wildfire, improved access and increased recreational use can be expected to increase the number of fire starts. However, they should normally be controlled more quickly, resulting in lower resource losses and substantial reduction in fire fighting costs.

The objective of fire management in wilderness is to permit naturally occurring fires to play, as nearly as possible, their natural ecological role. The use of lightning caused ignition allows fire to play its natural ecological role since the anticipated burn characteristics approximate those of pristine or near pristine conditions with a minimal risk to life and property. However, fire management policies have excluded prescribed fire in wilderness resulting in a fuel buildup, increasing the potential for large wildfires. The use of unplanned, lightning caused ignitions provides one opportunity to reduce these fuels to natural levels. Specific criteria, or conditions under which unplanned ignitions will be utilized, will be set forth in a fire management strategy for the wilderness

FOREST HEALTH

Forest pests include a variety of insects, diseases, parasitic plants, and animals. The damage they cause in the way of tree mortality, top-kill, reduced growth and tree quality, and impairment of seed production has the potential to adversely effect accomplishment of Forest land and resource management goals.

Native organisms that may function as pests are established elements of the forest and range ecosystem that co-evolved with their habitat. They affect the natural ecological processes and are affected

themselves by the same processes. Non-native organisms have the potential to cause large changes in ecosystems because native vegetation may have little resistance, and natural biological controls are usually lacking.

Pests can affect a variety of resources by their actions. The actual effect of pest organisms on the resources being managed is dependent on the management objectives for the area. The loss of timber through mortality and growth loss is one obvious effect Pests can adversely affect wildlife by altering the necessary habitat required for certain wildlife species. Significant numbers of dead trees on a hillside may alter the visual landscape. The loss of tree cover and creation of openings in the forest canopy of developed recreation sites can interfere with recreation objectives Forest pest management goals should be directed towards reducing pest-related losses to levels commensurate with management goals and objectives rather than total elimination of the pest.

The most severe pest damage is generally the result of pest activity combined with stressful environmental factors (drought, fire, storms), human-caused damage, and high stand densities. These factors act together as a complex, and most damage is not the result of action by a single pest. Common pest complexes on the Forest involve interactions between dwarf mistletoe, bark beetles, and root diseases aggravated by overstocking

As a result of below normal rainfall in California for the past several years, the level of insect-caused mortality has increased on the Forest. The cumulative effect of several years of drought has weakened trees to the point that their resistance to bark beetle attack has declined. This situation can be expected to worsen if the drought continues. For existing stands there is no feasible method for preventing continued mortality. Salvage of dead trees, which has begun, provides economic benefits but does little to prevent further mortality. In the long term, control of competing vegetation and the density of conifers through management in plantations and natural stands, will help reduce insect-caused mortality under prolonged drought conditions.

Within the eastern portion of the Forest, three known centers of a class A noxious weed (plumeless thistle) infest approximately 30 acres. Control of this range pest is cooperatively accomplished with county Agriculture departments. Eradication is almost complete on two of the three sites.

There have been limited reports on this Forest of Giardia lamblia, a water-borne intestinal parasite found in humans and many other mammals. This disease is transmitted via a cyst stage which can live in cold water for up to two months. The cyst is introduced into backcountry streams, springs, and lakes from human or animal fecal material and is distributed by water currents. Drinking water containing Giardia cysts causes Giardiasis, a disease which causes severe diarrhea, stomach cramps, nausea, and other debilitating symptoms Domestic animals such as cattle and wild animals such as deer can carry the parasite and are involved in its spread. For this reason there is no practical control method available. In the last few years the incidence of Giardiasis among outdoor recreationists has increased in many areas of the west, including California. The only preventative measure available at present is teaching the recreationist about Giardia and the potential health problems associated with drinking naturally occurring water. Water can be safely treated by boiling water for a few minutes or treating it with water purification tablets containing an iodine compound.

HERITAGE RESOURCES

As of 1989, approximately 26% of the Forest (approximately 230,630 acres) had been surveyed and 1,731 heritage properties recorded. Future surveys will likely identify fewer sites per acre than found in the past for several reasons. Most areas with a high probability of site locations have already been surveyed. Although low elevation and chaparral zones may have been occupied in the past during times of cooler climate, ground disturbing land management activities are not planned for the majority of these areas.

Those portions of the Forest which require more intensive inventory are those which are in wilderness, or have not been roaded or otherwise developed. Since these areas are substantially undeveloped, few if any project-related heritage resource surveys have been conducted and little is known of the heritage properties which may be present. These types of areas occur within the Yolla Bolly-Middle Eel and Snow Mountain wildernesses, the upper drainages of the South and Middle Fork of the Eel River, the Black Butte River, and Cache and Elk Creeks within the Forest boundary. Heritage resource information lacking in these areas includes basic location of reported or suspected heritage properties, systematic survey data, and credible estimates of the sensitivity of heritage resources which are likely to be present.

More comprehensive inventory data are needed before a model to predict site locations can be developed Generally, heritage resource inventories are performed on a site specific basis for individual projects such as a timber sale or a new campsite. This has led to gaps in heritage resource inventory data on a Forest-wide and cultural-area wide basis. A predictive model cannot be completed until sufficient survey data have been obtained from a variety of natural and physical environments

Although a Forest Cultural Resource Overview was completed in 1982, it was not designed to be used to evaluate heritage properties for their eligibility for inclusion in the National Register of Historic Places. Evaluations of archaeological sites are primarily based on an assessment of the importance of their scientific information, measured through correlations with past and current research and known or projected data needs. Evaluations are made on an individual basis and not upon classes of sites or heritage properties In the absence of a comprehensive research design, evaluations primarily rely on research in other areas for assessing significance.

Fifty-two heritage properties within the National Forest have been determined eligible for inclusion in the National Register of Historic Places. There is one State Registered Landmark at Letts Lake

Although few specific sites have been identified within the Forest as having ceremonial or spiritual significance to Native American people, several areas of heritage and historical importance have been identified. These sites will be managed and protected in consultation with relevant parties as indicated by site and project evaluations.

The primary source of adverse effects on heritage resources are land disturbing projects where some risks accompany certain management activities such as timber harvesting, road construction and reconstruction, and site preparation for reforestation. However, escalated use by recreationists, particularly in more remote areas that previously have been protected simply by non-use, are likely to present problems for future management of heritage resources

LANDS

The boundaries of the Mendocino National Forest encompass 1,079,971 acres, of which 894,399 (82.8%) are National Forest System lands, 181,708 (16 8%) are private lands, and 3,864 (.4%) are owned by other public agencies

Private landowners within the Forest have different and often competing interests, some of which are more compatible with Forest management activities than others Commercial lands within the Forest are primarily timber industry and ranch lands. Much of these lands and the adjacent Forest lands are managed through Coordinated Resource Plans.

Small land parcels are often owned by individuals as recreation summer homesites, but there are "inholders" that use their lands on a year-round basis as their primary residence. Although their needs and expectations include access, water, and fire protection from the National Forest, they are primarily concerned with visual effects. Of management concern, is possible subdivision and development of the larger parcels. This would have significant impacts on the Forest road system, resource management, fire prevention and protection.

Presently, ownership patterns outside of wilderness areas affect management in instances where specific small watersheds are at or above their cumulative watershed threshold due to management of private and public lands, and where small parcels in one ownership are intermingled with large blocks of other ownership creating access problems The land acquisition program is used to eliminate these isolated parcels through land exchanges beneficial to both parties. Such exchanges are an ongoing process. In addition to facilitating management, it will provide replacement habitat within LSRs, substantially reduce land line surveys and boundary maintenance costs, and resolve right-of-way problems.

Special uses: The Forest provides public land for a variety of individual and organizational needs The number of permits has increased in recent years. About 40% are for recreation and 26% for roads There has been a persistent interest in hydroelectric development. Although proposed projects have been dropped in the past, three are currently in process and it would be reasonable to expect some minor hydroelectric development will take place within the five-decade analysis period.

Withdrawals: There are 15 areas totaling 161,348 acres of Forest land withdrawn from mineral entry to protect investments and/or special resource values One power withdrawal of 4,751 acres is currently under Federal Energy Regulatory Commission license. Anticipated withdrawals are those which would result from the establishment of additional Research Natural Areas and Wild and Scenic River areas.

The Forest completed a review of all lands previously withdrawn from mineral entry as required under the Federal Land Policy Management Act (FLMPA). Based on this review, withdrawal of 13 recreation sites, 40 administrative sites, and one roadside scenic area were terminated because of the lack of mineral values and improvements needing protection.

Landline Surveys There are a total of 1200 miles of property lines on the Mendocino National Forest. Of this total, 740 miles have been surveyed to date. The current program identifies 35 miles of property line establishment per year over the next decade. Problems related to landline surveys include encroachment, corners out of position, and line location which disagrees with private landowners assumed location. Priorities for surveying landlines are resource management, suspected trespass, and trespass resolution (Small Tracts Act).

Occupancy Trespass· There are twelve known occupancy trespass cases. Three cases are in various stages of resolution. New landline surveys are expected to identify one new case for every fifteen miles of new line.

Rights-of-Way Acquisition: The existing Forest transportation system (excluding State and County roads) contains 2,463 miles of Forest roads. There are approximately 70 miles of rights-of-way needed for the existing system Current programs include 0.5 miles of rights-of-way to be acquired under the acquisition program and 3 9 miles under the Cost Share Agreement program. Priorities for rights-of-way acquisition are resource management, public access, and general access.

Electronic Sites: The Forest currently has five electronic sites. Availability of sites exceeds current demand, due in part to the lack of commercial power. Security from vandalism is a major concern of permittees.

Transportation and Utility Rights-of-Way: There are no existing or proposed utility or transportation corridors designated on the Forest. However, there are existing transmission line rights-of-way that cross Forest lands

LAW ENFORCEMENT

The Mendocino National Forest has shared law enforcement responsibilities with local law enforcement agencies for National Forest System lands. The primary objectives of the law enforcement program are: 1) complying with laws and regulations; 2) providing a safe environment for Forest users; 3) protecting Forest Service employees; 4) preventing crime; and 5) protecting Forest resources and property

The Mendocino is experiencing increasing Congressional and public demands for protection of National Forest resources and users. Crimes within the Forest are increasing, a trend expected to continue with population growth and improved access to the Forest.

In 1987 the Forest acquired about 500 acres of land surrounding Lake Red Bluff which includes an overnight campground and boat launching facility This area is in close proximity to Interstate 5, and, prior to 1991, camping was free with little control or enforcement. The area has a history of law enforcement problems the majority of which are drug and alcohol related. Other serious law enforcement situations on the Forest include.

- vandalism and property theft at the more isolated Forest Service stations
- timber trespass
- cultivation of marijuana
- public and employee safety

The Forest currently maintains Cooperative Law Enforcement Agreements with the Sheriff Departments of Glenn, Colusa, Lake, and Mendocino counties. The Forest cooperates with other Federal agencies, the California Department of Forestry and Fire Protection, California Department of Fish and Game, California Highway Patrol, and local law enforcement agencies in the investigation of wildfire, marijuana cultivation, and crimes committed on Forest lands

MINERALS

Minerals are broadly divided into locatable, leasable, and saleable categories. Locatable minerals are those which have a unique property which gives the mineral a distinct and special value The Mining Law of 1872, as amended, provides for the acquisition of possessory rights to these minerals by location of mining claims. Leaseable minerals include the energy minerals (except uranium), sodium minerals, phosphate minerals, and all minerals except common variety on acquired lands Their disposal is provided for by the Mineral Leasing Act of 1920. Saleable minerals are generally "common variety" that do not possess a unique property and which are generally of low value such as crushed rock and sand. They are disposed of by competitive sale, negotiated sale, or free use.

Locatable minerals found in the Mendocino include chrome, manganese, asbestos, and jade, with possible occurrences of mercury and gold. Chrome is the only mineral in the Forest which has been mined on a large scale. Several government subsidized chrome mines were operated within the Forest during wartime. There is still some interest shown in the former mines and claims, but the most recent activity has been on private lands adjacent to the Forest. The chromite deposits are generally confined to the zone of ultramafic rocks along the eastern edge of the Forest, and, although there is a high demand for both manganese and chrome for domestic consumption, the ore grades and quantities found within the Forest are not sufficient to be mined economically at this time.

Oil, gas, and geothermal are the only leasable commodities likely to occur in the Forest. The Forest lies north of the Geysers geothermal field and there have been numerous applications filed for geothermal leases on the Forest; however, all applications have been withdrawn for various reasons. Ninety-nine new applications had been filed by the close of 1988. Currently only 29 of the applications have not been withdrawn.

There has been some interest in gas and oil leases along the eastern slopes of the Forest since there are producing natural gas wells in the Sacramento Valley. Of 15 initial gas and oil applications, 12 have been withdrawn, and 3 leases have been issued. To date there has been only limited exploration to determine the presence of a geothermal or gas and oil resource within the Forest. This has primarily been in the form of test drilling to determine temperature ranges.

Saleable minerals on the Forest are primarily limited amounts of accessible crushed rock. Most of the sand and gravel of commercial quality is located outside the National Forest boundary.

There is presently little conflict in land use with the development of mineral resources within the Forest as most of the area is available for mineral exploration and development. Resource considerations such as soil, watershed, fish and wildlife habitat protection requirements, recreation management objectives, etc., could have an effect on how mineral development would occur, but would not necessarily preclude development. Those areas withdrawn from mineral entry include the Yolla Bolly-Middle Eel Wilderness, the Snow Mountain Wilderness, the Middle Fork of the Eel River Wild and Scenic River corridor, all five Research Natural Areas, and a narrow corridor along Forest Highway 7.

RANGE

The Mendocino National Forest currently manages 27 grazing allotments encompassing approximately 542,800 acres, of which about 200,000 acres are actually suitable for livestock grazing Prior to 1990, the Forest permitted an average yearly output of about 12,300 animal unit months (AUMs) of livestock grazing, and permitted numbers are on a declining trend Much more forage is produced in the steep mountains, but it is not all utilized for livestock grazing. This is because they tend to graze gently sloped areas excessively before they will graze in rough lands. Livestock grazing capacity in the uplands will remain below forage production since fences to control livestock distribution are usually not cost effective. However, about 2,000 acres of campgrounds and choice meadows valuable for wildlife have been fenced to protect them from overgrazing by cattle.

The lower elevation rangelands (below 4,500 feet elevation) are generally in fair to good condition These ranges, with the exception of type conversions, are composed of introduced annual species from the Mediterranean area which became established in the 1800's. These annual grasslands are currently managed according to standards established for management of annual range by the University of California.

Most of the poor condition range consists of riparian areas and higher elevation perennial grasslands which have not responded to reduced stocking rates alone. This is due primarily to two factors: 1) the environment at higher elevations is harsh for plant life, making vegetation less resilient in withstanding and recovering from adverse impacts; and 2) these areas (riparian and high elevation) are favored by livestock and used more heavily than the rest of the range during the summer grazing season. Therefore, these areas will require additional changes in management to improve their condition. Such changes may include various combinations of reduced stocking rates, different grazing systems, and capital investment in range improvements and rehabilitation projects.

Due to continued impacts of grazing upon riparian habitat capability, the Mendocino implemented new, more stringent grazing standards for riparian habitats in 1994 in an effort to assure the viability of riparian dependent species and to meet the aquatic conservation strategy objectives. The Forest Service and permittees negotiated adjustments in stocking rates, seasons of use, and other management practices needed to achieve the new standards. As a result, approximately 25% fewer AUMs were permitted during 1994.

Existing type conversions on the Forest are generally in good condition. However, limited areas of riparian vegetation or wet meadows occurring within the conversions tend to be heavily grazed. Brush re-invasion is the chief threat to existing type conversions. Forage production from type conversions and low elevation annual grasslands has been doubled by planting annual clovers. Even so, no additional type conversions are planned during the life of this Land and Resource Management Plan.

Current demand for forage from the Mendocino National Forest is strongly slanted toward summer range. Ranch operations adjacent to the Forest generally have an adequate supply of winter range but are short on summer range. Consequently, the Forest's winter range capacity is unutilized due to lack of demand and the summer range capacity is fully utilized.

Increases in recreation use in the Mendocino National Forest over the past two decades have resulted in an increasing number of conflicts between recreationists and livestock grazing. The conflicts occur

predominantly in recreation areas which are associated with a riparian area and in wilderness areas. Resolution of these conflicts has taken many forms, including fencing of campgrounds, herding livestock away from areas of conflict, closing high recreation use areas to grazing, and co-existing when the conflict is minor Implementation of the riparian reserves standards and guidelines from the FSEIS and ROD is expected to reduce these conflicts

Livestock grazing can be used to modify the structure and composition of vegetation to achieve management objectives other than livestock production. These objectives include:

1 Maintaining browse in young, productive, and available form classes for longer periods of time. This improves the quality and quantity of foraging habitat for browsing wildlife such as deer and tule elk. This effect occurs in type conversions, brushlands that have been broadcast burned for wildlife habitat improvement, and grasslands which are experiencing brush encroachment.

2. Retarding brush growth thereby reducing competition with conifer regeneration.

3. Maintaining a legume/forb component in annual grasslands. Deer prefer legumes and forbs over grass, and, in the absence of grazing, tall annual grasses become predominant, severely reducing legume/forb production. Ungrazed annual grasslands are less productive for deer during the winter months when they use this vegetation type.

4. Reducing fire hazard Grazing can be used to reduce the amount of flashy fuels and to retard the growth of brush in fuelbreaks.

These have not been primary objectives of grazing management in the Mendocino in the past. However, opportunities to manage grazing to achieve the above objectives may arise in the future.

RECREATION

The Mendocino National Forest offers a variety of recreational opportunities, ranging from primitive unconfined experiences found in some 137,800 acres of Wilderness to the rural setting of Lake Red Bluff along a major interstate highway. Current recreational use of the Forest remains well below its capacity. This is due in part to the lack of water-oriented recreation opportunities and the primitive nature of the road system which serves primary Forest recreation areas.

Counties adjacent to the Forest are rural, but the Forest also serves urban areas such as Sacramento and San Francisco. Almost seven million people live within four hours driving time of the Forest boundary. An additional hour of driving is needed to reach the Forest's most popular recreation areas.

Studies by the California Department of Parks and Recreation indicate that about 55% of an individual's outdoor recreation time is spent within two hours travel time from home. Projections for the population within the two-hour recreation zone of the Forest indicate a projected growth of 1.4% per year, for the next 30 years. This compares with a projection of 1.1% for the State.

From 1979 through 1989, recreation increased at a rate of 4% a year; it increased at 8.6% a year for the first five years, and then leveled off. Developed recreation increased 4.7% per year and dispersed at 3 8% over the decade

Recreation Opportunity Spectrum (ROS)

ROS criteria have been used to inventory the opportunity for various types of recreation experiences Under the ROS system, lands are categorized according to the recreation experiences attainable, based on the possible combinations of activities, settings, and experience opportunities. For further description of the Recreation Opportunity Spectrum refer to Appendix F. The current recre-

ation opportunity inventory (acres, estimated capacity, present use, and projected demand) is summarized in Table 3-2 As can be seen from the Table, the current land base is sufficient to meet expected demand for recreation by ROS class until the year 2040.

Developed Recreation

Although there is a long-term surplus of recreation facilities when viewed from an entire Forest perspective, some of these are currently, or will be in the near future, unable to meet recreation demand. A recreation needs assessment completed in 1983 indicates that, while the demand for non-water oriented recreation facilities should not exceed existing capacity in the foreseeable future, there is sufficient unmet demand for water-oriented facilities to support further development.

Table 3-2
CURRENT RECREATION OPPORTUNITY SPECTRUM INVENTORY

ROS Class	Inventory ROS M Acres	Season Use Days	Recreation Visitor Days (M RVDs) Theoretical Capacity	1989 Use	2040 Demand
Primitive	84.0	100	83	20	62
Semi-primitive					
Non-Motorized	95.0	130	380	99	202
Motorized	299.0	180	1,017	287	743
Roaded Natural	416.0	160	6,490	584	1,179
Rural-Lake Red Bluff	0.5	300	700	80	700

The most popular developed facilities are in the lake areas. At Lake Pillsbury, even though access via 15 miles of low standard dirt road tends to limit use, facilities are currently used at 70% of optimum. The next most popular site is at Letts Lake, with use at 41% of optimum capacity. The 1984 use figures for the eight water oriented campgrounds indicate 110,000 visitor days out of a 177,900 visitor day capacity. Projected demand for water-oriented facilities is expected to exceed existing capacity before the year 2015.

In 1988, the Forest Service acquired approximately 500 acres of land from the Bureau of Reclamation. This area is located along the Sacramento River at Red Bluff, California. Annual recreation use of this area has been about 80,000 RVDs. With additional development, boat launching facilities, camp sites, etc., it is estimated that the area could accommodate close to 700,000 RVDs per year. Due to the area's location immediately adjacent to a major interstate highway, and its inherently high water oriented recreation characteristics, this facility will always operate very close to capacity.

Other opportunities to meet this growing demand are limited. The best opportunities appear to be through improved access and additional developments in the Lake Pillsbury area, and through development of a small reservoir and campground in the Sugarfoot Glade area in the northern portion of the Forest. There is also some potential for developing Howard Lake and a small lake near Blands Cove on the Covelo District.

The majority of the recreation facilities on the Forest were developed during the period 1950 to 1970. Most sites are in satisfactory condition, but there is immediate need for major rehabilitation of some sites. As a proportion of Forest visitor use, these facilities accounted for approximately 35% of the Forest's recreation use during 1989.

There are currently about 110 recreation residences on eight different sites within the Forest Although no new residences are allowed under current Forest Service policy, existing residences provide recreational use for a significant number of people. Prior to the expiration of the current

permits in 2008, future use determinations will be scheduled to determine if this use should be continued, or if there is a greater public use of these areas

Dispersed Recreation

Dispersed recreation activities are those which generally occur in a natural environment, free from extensive site modification. Such activities range from pleasure driving to remote camping to hang-gliding, a recent use of the Forest. As a proportion of Forest visitor use, these activities accounted for approximately 65% of the Forest's recreation use during 1989.

Trails

The Forest provides 355 miles of trails for hiking and horseback riding, and 235 miles for off-highway-vehicle use. The popularity of all of these activities has increased substantially in recent years. There are also 58 miles of roads officially designated as 4WD routes, and several hundred miles of uninventoried roads, abandoned trails, fuelbreaks, and openings created by logging where unauthorized use occurs. Foot and horse trail use occurs throughout the Forest in conjunction with hunting and fishing, and in the Wildernesses Horseback riding is popular in the Kingsley Glade area, as well as in the Snow Mountain and Yolla Bolly-Middle Eel Wildernesses

There are three National Recreation Trails within the Forest: the Sled Ridge OHV trail in the Middle Creek-Elk Mountain area, the Traveler's Home foot and horse trail near the Eel River, and the Ides Cove foot and horse trail located within the Yolla Bolly-Middle Eel Wilderness.

Trail conditions range from good, where California Green Sticker Program funding has been provided to reconstruct and maintain OHV trails, to poor or fair for foot and horse trails by design or where available funding has only been enough to maintain these trails in a passable condition Consequently, there is a general need for reconstruction and maintenance.

Fifty years ago, the Forest's system of foot and horse trails provided primary access for fire protection and range management. Today trails are primarily recreation facilities. Portions of the old trail system may not meet recreational needs today and in the future, because desired routes and destination points are different now. For this reason abandonment of specific segments of trail and removal of these segments from the database, after inventory and evaluation of heritage resources, may be necessary as part of an efficient program of trails management on the Forest.

OHV use has been the fastest growing recreation activity on the Forest over the past 30 years Motorcycle use is the predominant, or at least most visible, OHV activity. Four-wheel-drive (4WD) use is still heavily identified with hunting; however, individual and small group use is increasing especially during the winter months. The results of monitoring over the previous years indicate a need to disallow cross-country OHV use Unacceptable resource loss (i.e., soil erosion and damage to plant and animal communities) requires the Forest to carefully assess and develop the location of specific trails on a case-by-case basis.

Mountain bike use is currently low. However, trail use and demand for challenging trails is increasing.

Organized OHV events are managed under special use permits that require bonding to guarantee cleanup and trail maintenance after the event. There are normally five major organized events each year in the southern half of the Forest Events are scheduled so as not to conflict with hunting season or major holiday use

Winter Sports

Due to the lack of all-weather access to elevations where the snow can be found for long durations, there is currently no opportunity for high-quality snow recreation Snow conditions are marginal for

downhill skiing, however, snowmobiling and cross-country skiing are reasonably possible in the Mendocino Pass-Anthony Peak-Plaskett Lakes, Hull Mountain, and Alder Springs areas.

As early as the 1960's, interest was expressed in, and studies begun on, development of the Anthony Peak area for downhill and Nordic skiing. Although there is still substantial interest from both Glenn and Mendocino counties, the potential is limited by the problem of access, which would require major reconstruction and paving of Forest Highway 7. Beyond that, any development must contend with the vagaries of the weather and spotty snowpack.

RESEARCH NATURAL AREAS

Research Natural Areas (RNAs) are areas set aside to preserve representative examples of specific botanic, aquatic, and geologic features, primarily for scientific and educational purposes.

The Mendocino National Forest has five designated RNAs. These areas on the Forest are:

1. Frenzel Creek (Sargent cypress, MacNabe cypress, and serpentine chaparral) - This 935 acre area is located approximately six miles south of Stonyford in the Frenzel Creek drainage, a small tributary to Little Stony Creek. The area also has several plant species listed Regionally as sensitive.

2. Hale Ridge (knobcone pine) - This 975 acre area includes dense stands of knobcone pine with several transitional zones to chamise chaparral, mixed hardwoods and chaparral, and mixed conifer types. The area occupies the entire watershed bounded by the Rice Fork of the Eel River and a fork of Salt Creek. It is dissected into numerous small fingers and subwatersheds, and all possible aspects are represented. Elevation ranges from 2,400 feet to 3,600 feet. Slopes range from 5% on the main ridgetops, to over 60% in some of the side drainages.

3. Wilder Ridge (chamise/chaparral) - Located on the eastern edge of the Forest, this 570 acre area has a prevailing easterly aspect which is moderately steep with slopes of 30% to 50%, and incised by several steep draws and intermittent stream courses, which result in very broken topography. Dense stands of chamise occur on approximately 340 acres.

4. Devils Basin (black oak) - Devils Basin is on the north slope of Log Springs Ridge along Thomes Creek. The heart of the basin is a large flat on the toe of an old land failure and is surrounded on three sides by moderately steep slopes. Elevations range from 1,500 feet to 3,850 feet The area contains a large stand of black oak (420 acres) with adjacent stands of oak-savannah, mixed hardwood, conifer-hardwood, and mixed shrub types for a total of 671 acres.

5. Doll Basin (mixed conifer) - The area lies between Doll Ridge and Summit Ridge and contains five distinct drainages totaling approximately 995 acres. Vegetation ranges from Douglas-fir Ponderosa pine at the lower elevations to white fir Douglas-fir at the higher elevations. Sugar pine, incense cedar, and black oak are secondary species found through much of the area.

Additional inventories will be conducted to determine if there are opportunities for representation of additional targeted botanical, geological, and aquatic elements for the physiographic province.

RIPARIAN AREAS

Riparian areas include lands adjacent to perennial and intermittent streams and other bodies of water, wetlands, and floodplains. These areas support a variety of plant communities and habitat for many aquatic and terrestrial animals The riparian areas serve to help protect water quality and fish habitat, by filtering run-off, maintaining channel stability, and providing shade to maintain water temperatures. These areas also contribute to the visual variety of the landscape and biodiversity of the Forest, they

provide water oriented recreational opportunities, forage for wildlife and livestock, as well as cover and dispersal habitat for wildlife; and they contain valuable timber resources.

Typical riparian vegetation normally associated with these moist sites is often lacking along the major stream courses such as the Middle Fork of the Eel River. This condition is due, at least in part, to the scouring effect of high peak flows during periods of flooding such as those which occurred during 1964 and during the high flows of the early 1970's. Where the typical riparian vegetation does occur, it is most often found in narrow bands or patches along stream courses, with alder, cottonwood, and maple being the major species.

Wetlands include swamps, marshes, bogs, wet meadows, and natural ponds. There are some larger wet meadows like Kingsley Glade, bogs like Lower Letts Valley, and ponds like Alder Creek Pond and numerous landslide slump ponds that meet the wetland definition.

While most of the true floodplains are outside the Forest boundary, there are minor amounts within the Forest. Flooding occurs along steep narrow mountain canyons of the Middle Fork of the Eel River, Black Butte River, Grindstone Creek, and Thomes Creek. The Middle Creek Campground, Bear Creek Campground, and Road 20N01 across Gravelly Valley are all built on floodplains. Although the flood of 1964 approached these facilities, they remained above the high water mark.

Protection and management of riparian areas on the Forest is a significant public and resource management issue The major areas of conflict in management of these areas has focused on timber harvest, road construction, livestock grazing, fire suppression activities, and, to a lesser extent, certain forms of recreation, primarily OHV use.

Management direction to protect riparian areas requires the attainment of nine aquatic conservation strategy objectives aimed at maintaining or restoring natural structures, functions, and processes in aquatic and riparian ecosystems. This is accomplished through the implementation of approved Best Management Practices, riparian reserve standards and guides, and on-site examination of conditions within proposed project areas to identify additional mitigation measures, if needed, to meet the aquatic conservation strategy objectives.

ROADLESS AREAS

The California Wilderness Act released approximately 141,950 acres within inventoried roadless areas (RARE II) from further consideration for wilderness until a later date. The released areas and their approximate acreages are shown in the following Table.

Table 3-3
INVENTORIED ROADLESS AREAS

ROADLESS AREA		ACREAGE
05137	*Wilderness Contiguous	3,380
05138	Deer Mountain	11,700
05139	Thomes Creek	15,900
05140	Elk Creek	17,400
05141	Thatcher	12,900
05142	Grindstone	26,200
05143	Reister Canyon	5,600
05144	*Snow Mountain	12,300
05145	*Big Butte-Shinbone	5,370
05269	Black Butte	15,200
05280	Skeleton Glade	9,300
05281	Briscoe	6,700

*Includes only that portion of the roadless area not designated Wilderness by the California Wilderness Act of 1984.

The following provides a brief description of some of the key attributes for each of the released roadless areas:

Wilderness Contiguous (05137): 3,380 total acres - This area lies adjacent to the existing Yolla Bolly-Middle Eel Wilderness and includes those portions of the original roadless area not included in the additions to the Wilderness under the California Wilderness Act. The entire 3,380 acres provides semi-primitive motorized recreation opportunities. Visual quality is considered high (Variety Class A) on approximately 5% of the area with the balance considered common (Variety Class B) to the Forest. Wildlife values are generally considered to be high with the area providing suitable habitat for spotted owl, marten, fisher, goshawk, and deer. The potential for significant mineral occurrence is considered low throughout the area. The potential for the occurrence of gas and oil or geothermal resources is unknown. The area contains approximately 1,700 acres of tentatively suitable timberland and supports an estimated 43 animal unit months (AUMs) of livestock grazing.

Deer Mountain (05138): 11,700 total acres - This area consists primarily of the brush slopes along the eastern portion of the Forest. Opportunities for solitude and primitive recreation are few to non-existent. Semi-primitive non-motorized recreation opportunities are available on approximately 8,700 acres, with semi-primitive motorized and roaded natural recreation opportunities available on 2,000 and 1,000 acres respectively. The area contains a distinctive (Variety Class A) level of visual quality on approximately 300 acres, common (Variety Class B) on 3,000 acres, and minimal (Variety Class C) visual quality on some 8,000 acres. Wildlife values are considered to be low throughout most of the area with only limited winter deer range being provided. The potential for significant mineral occurrence is considered low on about 3,700 acres and high on the remainder of the area. The potential for the occurrence of gas and oil or geothermal resources is unknown. The area includes approximately 200 acres of tentatively suitable timberland and supports an estimated 50 AUMs of livestock grazing.

Thomes Creek (05139): 15,900 total acres - Opportunities for solitude and primitive recreation are generally considered low within this area. However, opportunities for semi-primitive non-motorized recreation are available on about 90% of the area with opportunities for a roaded natural recreation experience on the remaining area. Visual quality within the area is considered to be high (Variety Class A) on about 1,300 acres, common (Variety Class B) on 12,000 acres, and minimal on 2,600 acres. Wildlife values are considered to be relatively high, with deer winter range and suitable bald eagle and goshawk habitat found within the area. The potential for significant mineral occurrence is considered low on about 11,300 acres, moderate on 2,200 acres, and high on 2,400 acres The

potential for the occurrence of gas and oil or geothermal resources is unknown. The area contains approximately 3,500 acres of tentatively suitable timberland and provides an estimated 500 AUMs of livestock grazing

Elk Creek (05140)· 17,400 total acres - This area is also situated along the western slopes of the Forest and is adjacent to the southern portion of the Bureau of Land Management Thatcher-Eden Valley Wilderness Study Area A significant portion of this area was burned by the Mendenhall Fire of 1987. Few opportunities for solitude and primitive recreation exist within the area A semi-primitive motorized recreation setting is provided throughout the entire area. About 20% of the area is classified as having distinctive (Variety Class A) visual quality, with 65% of the area considered common (Variety Class B), and 15% with minimal (Variety Class C) qualities. Wildlife values in the area are considered to be very high and include habitat for tule elk, spotted owl, marten, fisher, and key deer range The potential for significant mineral occurrence is considered low on about 15,700 acres and moderate on 1,700 acres. The potential for the occurrence of gas and oil or geothermal resources is unknown The area contains approximately 6,000 acres of tentatively suitable timberland and provides an estimated 300 AUMs of livestock grazing

Thatcher (05141)· 12,900 total acres - This area is situated along the western slopes of the Forest and is adjacent to the northeastern portion of the Bureau of Land Management Thatcher-Eden Valley Wilderness Study Area. Opportunities for solitude and primitive recreation are considered to be low when considering the National Forest lands only, and moderate when the adjacent BLM Study Area is included. A semi-primitive motorized recreation setting is provided over about 80% of the area with a roaded natural recreation experience offered on the remainder of the area. Approximately 15% of the area is classified as having distinctive (Variety Class A) visual quality, 70% with common (Variety Class B) visual qualities, and 15% with minimal (Variety Class C) visual quality. The area contains relatively high wildlife values which include suitable habitat for marten, fisher, spotted owl, and goshawk. The potential for significant mineral occurrence is considered low on about 8,600 acres and moderate on 4,300 acres The potential for the occurrence of gas and oil or geothermal resources is unknown. The area also contains approximately 2,400 acres of tentatively suitable timberland and provides an estimated 540 AUMs of livestock grazing.

Grindstone (05142): 26,200 total acres - This area is also subject to the influences of activities on adjacent lands due to its long and narrow shape. Approximately two-thirds of the area provides opportunities for semi-primitive non-motorized recreation with the remainder of the area providing *opportunities for a roaded natural recreation experience About 5% of the area is classified as having* distinctive (Variety Class A) visual qualities, with 45% considered as common (Variety Class B), and 50% as having minimal (Variety Class C) visual quality. Wildlife values include winter deer range and suitable spotted owl habitat. The potential for significant mineral occurrence is considered low on about 19,100 acres and moderate on 7,100 acres. The potential for the occurrence of gas and oil or geothermal resources is unknown. The area contains approximately 1,900 acres of tentatively suitable timberland and provides an estimated 525 AUMs of livestock grazing.

Reister Canyon (05143): 5,600 total acres - This area is located on the brush covered slopes on the southeastern edge of the Forest. Opportunities for solitude and primitive recreation are few to non-existent within the area The area provides a semi-primitive motorized recreation setting. About 45% of the area is classified as having common (Variety Class B) visual quality with the remaining 55% considered to have minimal (Variety Class C) quality. Wildlife values are considered to be relatively low, although some peregrine falcon habitat and deer winter range are found in the area The potential for significant mineral occurrence is considered low on about 2,800 acres, moderate on 1,200 acres, and high on 1,600 acres. The potential for the occurrence of gas and oil is unknown on about 2,300 acres and low on 3,300 acres. The potential for geothermal resources is unknown on about 3,200 acres and low on 2,400 acres. There is no tentatively suitable timberland within the area, and there is currently no livestock grazing within the area.

Snow Mountain (05144): 12,300 total acres - This area includes the remaining portions of the original roadless area not included within the Snow Mountain Wilderness under the California Wilderness

Act. The area is divided into four separate pieces which are interwoven with private property and have numerous man-made intrusions, including electronic towers, roads, and buildings. The recreation setting is divided almost equally between semi-primitive non-motorized and semi-primitive motorized opportunities. Approximately 20% of the area is classified as having distinctive (Variety Class A) visual quality, 60% with common (Variety Class B) visual quality, and 20% with minimal (Variety Class C) visual quality Wildlife values in the area are considered to be relatively high and include habitat for peregrine falcon, marten, goshawk, tule elk, and key summer and winter deer range. The potential for significant mineral occurrence is considered low on about 10,000 acres and moderate on 2,300 acres. The potential for the occurrence of gas and oil is unknown on about 12,000 acres and low on 300 acres. The potential for geothermal resources is unknown on about 9,800 acres and low on 2,500 acres. The area contains approximately 2,800 acres of tentatively suitable timberlands and provides an estimated 320 AUMs of livestock grazing.

Big Butte-Shinbone (05145): 5,370 total acres - This area is situated adjacent to the Yolla Bolly-Middle Eel Wilderness and includes the remaining portion of the original roadless area not included in the Wilderness under the California Wilderness Act. Opportunities for solitude and primitive recreation are considered good within the area. Primitive recreation opportunities are available on approximately one-half of the area with semi-primitive motorized opportunities on the balance. The level of visual quality found in the area is also about equally divided between high (variety Class A) and common (Variety Class B). Wildlife values are considered to be very high with suitable habitat for spotted owl, peregrine falcon, goshawk, marten, deer, black bear, and fisher found within the area. The potential for significant mineral occurrence is considered low on about 2,600 acres and moderate on 770 acres. The potential for the occurrence of gas and oil or geothermal resources is unknown. The area also contains about 2,300 acres of tentatively suitable timberland, and there is currently no livestock grazing within the area

Black Butte (05269): 15,200 total acres - The long narrow shape of this area makes it vulnerable to the influences of activities an adjacent lands. This entire area provides opportunities for semi-primitive non-motorized recreation. Visual quality over the majority (90%) of the area is classified as common (Variety Class B) with the remainder considered to be of minimal quality (Variety Class C). Wildlife values include deer winter range, eagle foraging habitat, wild turkey, and steelhead trout. The potential for significant mineral occurrence is considered low throughout the area. The potential for the occurrence of gas and oil or geothermal resources is unknown. The area includes 3,800 acres of tentatively suitable timberland and provides an estimated 460 AUMs of livestock grazing.

Skeleton Glade (05280): 9,300 acres total - Opportunities for solitude and primitive recreation are highly limited within this area due to its relatively small size. A semi-primitive motorized recreation setting is provided throughout the entire area. Approximately 5% of the area has been classified as having distinctive (Variety Class A) visual quality, with 70% having common (Variety Class B) visual quality, and 25% having minimal (Variety Class C) visual quality. Wildlife values are considered to be relatively high and include suitable habitat for peregrine falcon, goshawk, and deer winter range. The potential for significant mineral occurrence is considered low on about 8,700 acres and moderate on 600 acres. The potential for the occurrence of gas and oil or geothermal resources is unknown The area includes approximately 1,700 acres of tentatively suitable timberland and provides an estimated 125 AUMs of livestock grazing.

Briscoe (05281): 6,700 total acres - The majority of this area is situated on the brush covered slopes along the eastern side of the Forest. Opportunities for solitude and primitive recreation are considered low due to the area's small size and exposure to the Sacramento Valley. The area contains 4,500 acres with a semi-primitive motorized recreation setting and 2,200 acres with a roaded natural recreation setting. Approximately 5% of the area is classified as having distinctive (Variety Class A) visual quality, 30% common (Variety Class B) visual quality, and 65% minimal (Variety Class C) visual quality. Wildlife values are relatively low with deer winter range being the primary value. The potential for significant mineral occurrence is considered low on about 5,700 acres, moderate on 700 acres, and high on 300 acres The potential for the occurrence of gas and oil or geothermal resources is

unknown The area includes about 700 acres of tentatively suitable timberland and provides an estimated 120 AUMs of livestock grazing.

SOILS AND GEOLOGY

The soils found on the Mendocino National Forest are generally derived from metasedimentary sandstone and mudstone, primarily shale and schist. Serpentinite and volcanic greenstone crop out continuously along the eastern boundary of the Forest and represent ancient oceanic crust that has since been thrust onto the continent.

Many of the Forest soils are shallow and gravelly, have low water holding capacities, and are low in productivity. Approximately 15% of the Forest's soils are low in range productivity, producing less than 400 pounds of forage per acre. Highly productive soils cover about 75% of the Forest and generally support thrifty stands of conifers.

Prior to the National Forest being set aside in the early 1900's large areas on the Forest were burned each year and heavily grazed. The effects of these past practices can be still be observed on barren ridges with their compacted and eroded soils. Erosion has removed a majority of the productive surface soils, and the productivity has been lost to the extent that natural regeneration of conifers is doubtful Some of these areas are presently being treated to establish ground cover and reduce erosional impacts, but recovery will take many years.

Forest soils that have a clay or loam texture are highly susceptible to compaction and erosion. Compaction can reduce tree or vegetative growth by limiting the amount of oxygen available to the plant's root system. Compaction reduces water movement through the soil, and compacted soils are subject to overland flow and erosion, reducing the amount of water storage available for plant growth and ground water recharge. The erosion potential of most of the soils on the National Forest range from moderate to high. Most of the soils in the lowest productivity classes have the highest erosion potential.

A reconnaissance level soil survey has been completed for the Forest. This survey began with the soil vegetation concept in the 1940's and was recently completed under the National Cooperative Soil Survey Program. This is a combination of several surveys and is adequate for Forest level planning, but a more detailed, comprehensive survey is needed for project planning

The timber productivity of Forest soils is based on Region Five site classes which are a measure of the ability of a site to produce wood. High site can potentially produce 85 to 164 cubic feet of wood per acre per year, Moderate site can produce 50 to 84 cubic feet, and Low site can produce 0 to 66 cubic feet. Approximately 15% of this Forest is high site, 60% is moderate site, and 25% is low site.

The soil's ability to produce forage is measured in pounds of forage per acre per year. High productivity corresponds to 801-1500 pounds, Moderate to 301-800 pounds and Low to 0-300 pounds per acre per year Approximately 7% of this Forest has high range productivity, 78% has moderate range productivity, and 15% has low range productivity.

Mass wasting has been a dominant factor in shaping the land surface of the Forest Landslides are a function of geologic factors including slope, rock type, structure (faults and folds), and climate Although mass wasting is primarily a function of geology, management activities and natural occurences such as road construction, timber harvest, and wildfire can initiate landslides.

A preliminary evaluation to determine the relative risk of landslides resulting from ground disturbance indicates that approximately 5% of the Forest has a high risk of mass wasting, 57% has a moderate risk, and 38% has a low risk. Landslides are most prevalent in the western portions of the Forest However, they can and do occur throughout the Forest.

Several large fault zones as well as numerous small faults have been identified within and adjacent to the Forest. The Coast Range Thrust and the Stony Creek Fault exist along the eastern edge of the Forest marking borders of ancient plates of the earth's crust. These faults are considered presently inactive (McLaughlin et al, 1975), however, seismicity ranging in magnitude of 2.8 to 3.6 associated with the Stony Creek fault at the latitude of Newville in the Thomes Creek and Elder Creek area make this fault "potentially active" (Earth Science Associates, 1980).

The occurrence of suitable rock and earth road construction materials is extremely limited on the Forest. This has been a major contributing factor to the lack of surfaced roads on the Forest Sufficient gravels are available from sites located around Gravelly Flat to meet the anticipated needs in the southern portion of the Forest. However, it has proven more economical to utilize commercial sources to meet the needs elsewhere on the Forest due to the long haul required from Gravelly Flat to construction sites in the central and northern parts of the Forest. Suitable rock for crushing is almost non-existent on the Forest.

To date there has been no inventory of groundwater resources within the Forest. Groundwater sources are needed to provide safe and relatively constant water supplies for administrative sites, campgrounds, livestock, and wildlife Demands are slowly increasing, but total demands are relatively small and confined to specific portions of the Forest. Portions of the Forest may provide recharge to the groundwater recharge area located in Gravelly Valley and to the Sacramento Valley along the east side of the Forest.

There are currently no Geologic Special Interest Areas on the Forest nor are there any areas under consideration. Although the potential occurrence of suitable candidate areas is thought to be relatively slight, there will be a specific effort to identify such areas.

SPECIAL INTEREST AREAS

The objectives of the Special Interest Area program are to protect, and where appropriate, foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, paleontological, or other special characteristics.

There are currently two special interest areas within the Snow Mountain Wilderness, and members of the public have suggested several areas for consideration including Blue Banks, Keller Lake, Twin Rocks, and Anthony Peak. These areas need to be studied further in order to make a final determination of their suitability for Special Interest Area designation. There may be other areas on the Forest that are potentially suitable for classification. A Forest-wide inventory will be necessary to complete this Forest's system of Special Interest Areas.

THREATENED, ENDANGERED, AND SENSITIVE PLANTS

Threatened, endangered, and sensitive plants (TES plants) are recognized by the Regional Forester to warrant special management consideration to ensure maintenance of viable populations. They include all federally listed species and may include plants listed by the State as endangered, threatened, or rare. Seventeen TES plant species are known or suspected to occur on or adjacent to the Mendocino National Forest. Howellia aquatilis was added to the Federal list of threatened species in 1994. Brodiaea coronaria ssp. rosea, Eriogonum kelloggii, and Silene campanulata ssp. campanulata are listed as Endangered by the State of California. Eriastrum brandegeae is listed by the State of California as Rare.

TES plant species were considered for selection as Management Indicator Species to monitor the effects of resource management. TES plants are not good indicators of management effects because they are not well distributed throughout the Forest. To get accurate information on management effects, impacts should occur and measurements be taken over a wide variety of circumstances, soils, and climates Eight of the species are found only on serpentine soils. Others are found only in rocky areas

on the fringe of higher elevation conifer sites Others, which occur within the chaparral type, have been found in locations of very limited distribution. Plants which occur in isolated locations or on rare soil types do not serve as good indicators of management effects

Eight of the TES plant species on the Forest list grow only in areas of serpentine soil. The principal threat to populations of these species appears to be invasion of their habitat by brush species such as whiteleaf manzanita and leather oak. Road construction, heavy livestock use, OHV use, and burning when soils are moist may destroy seed sources during reproductive periods and pose a limited local threat. Continual destruction of seed sources of annual species from excessive dust from roads and OHV trails, over grazing, and road drainage poses a threat to some annual species populations The Forest currently employs measures to mitigate such effects Rotational and deferred grazing systems, as well as structural and non-structural improvements to eliminate cattle from certain areas provide, opportunities for protecting two species occurring in the upper elevation barren areas.

Table 3-4
TES PLANT SPECIES

SCIENTIFIC NAME	COMMON NAME
Antirrhinum subcordatum Gray	dimorphic snapdragon
Astragalas clevelandii Greene	Cleveland's milk vetch
Brodiaea coronaria (Salisb) Engler spp. rosea (Greene) Niehaus*	rosy/Indian Valley brodiaea
Epilobium nivium Bdg.	Snow Mountain willowherb
Eriastrum brandegeae Mason***	Brandegeae's eriastrum/woolly star
Eriogonum kelloggii Gray*	Kellogg's/Red Mountain buckwheat
Eriogonum nervulosum (Stokes) Reveal	Snow Mountain buckwheat
Fritillaria pluriflora Torr. in Benth	Adobe Lily
Hesperolinon drymarioides (Curran) Small	western/drymaria-like flax
Hesperolinon tehamense H.K.Sharsm.	Tehama flax
Howellia aquatilis Gray **	Howellia
Lewisia stebbinsii Gankin & Hildreth	Stebbins' lewisia
Linanthus harknessii (Curran)Green ssp. condensatus Mason	Plaskett Meadows linanthus
Lupinis antoninus Eastw.	Anthony Peak lupine
Madia stebbinsii Nelson & Nelson	Stebbins' madia
Raillardella scabrida Eastw.	scabrid raillardella
Silene campanulata Wats ssp. campanulata*	Red Mountain catchfly

* Endangered, State of California
** Threatened or Endangered, Federal
*** Rare, State of California (E. tracyi now considered the same species as E. brandegeae).

TIMBER

There are 471,916 acres of National Forest land capable of producing commercial timber crops at acceptable growth rates Of this total, the 99,890 acres within the Yolla Bolly-Middle Eel and Snow Mountain Wildernesses and the Middle Fork of the Eel River Wild and Scenic River corridor are unavailable for timber management. Approximately 135,017 acres of otherwise suitable timberlands within Late Successional Reserves (LSRs), have been withdrawn from the suitable land base. Another 28,593 acres are not considered suitable for timber production without irreversible soil and watershed damage, nor is there reasonable assurance that a portion of these lands could be adequately restocked within five years of final harvest.

Although the remaining 208,400 acres of commercial forest land are tentatively suitable for timber management, suitability is affected by other resource and management considerations. Concerns for

uses such as recreation, visual resources, wildlife dispersal habitat, and riparian reserves, impose limits which reduce the area finally considered suitable for regulated timber management. The capable, available and suitable (CAS) timber landbase is approximately 61,000 acres.

Based on timber stand mapping completed in 1980 and updated through 1990, the three major forest types occurring on suitable lands are briefly described below.

Mixed Conifer - Mixed conifer stands are composed of varying mixtures of ponderosa and Jeffrey pines, sugar pine, Douglas-fir, white fir, and incense cedar. At low and middle elevations ponderosa pine is the dominant type on slopes with a southern aspect, and Douglas-fir on north-facing slopes. At upper elevations white fir and Douglas-fir tend to predominate as aspect becomes less important. Mixed conifer stands occupy 143,300 acres, or 69 percent of the tentatively suitable land base.

Conifer-Hardwood - The conifer hardwood type occurs at low to middle elevations. The coniferous component of this type is similar to the mixed conifer type described above The criteria for distinguishing conifer-hardwood stands from mixed conifer is the presence of hardwood stocking at levels greater than commercial conifer stocking, based on crown cover. The conifer hardwood type occupies 59,950 acres or 29 percent of the tentatively suitable land base. The conifer hardwood timber strata, C2X (small size class trees) is not included in the CAS landbase because the intensity of management activities necessary to maintain a conifer component, when regenerated, is inconsistent with the Forest Plan goals and objectives.

Red Fir - The red fir type occurs at elevations above approximately 6,000 feet Usually this type is composed of mixtures of red and white fir with red fir as the predominant species, although in some areas red fir grows in nearly pure stands. The red fir type is the smallest of the three commercial forest types, occupying 5,150 acres, or two percent of the tentatively suitable land base.

Significant timber losses have occurred in the mixed conifer and conifer-hardwood types as a result of major fires which burned in September of 1987. Most of the losses occurred in the two largest fires, the Mendenhall Fire on the Upper Lake Ranger District, and the Fouts Fire on the Upper Lake and Stonyford Districts In these two fires, timber stands on extensive areas of forested land were killed or damaged. Several smaller fires occurred at the same time, but the area of suitable land damaged was relatively small.

The intensity of the fires varied greatly within the boundary of the burns. On much of the tentatively suitable land area within the burns, all, or nearly all, commercial conifers were killed. On the balance of the burned area only partial mortality occurred, and varying levels of live conifer stocking remains.

On the above fire damaged lands the existing timber inventory has been significantly reduced, and timber data used to calculate allowable sale quantity for the final LRMP was adjusted to reflect this. Much of the burned timber has been sold and salvage logged, however, not all fire killed timber was removed. Dead trees were left to meet special wildlife habitat and watershed protection needs created by the fires, and because scattered fire killed trees in some lightly burned stands were uneconomical to log.

Reforestation of the burns began in the spring of 1988, and all of the burned area in need of reforestation has now been planted Some partially burned areas will be reforested after the remaining live trees have been harvested at a future time as part of the Forest's regular green timber sale program.

Average annual volume sold during the ten years between 1978 and 1987 was 84.0 MMBF. In 1988, due to burn salvage, volume sold was 107.5 MMBF. Since that time timber sold from the Forest has declined, primarily due to northern spotted owl concerns In 1989, the year northern spotted owls were proposed for listing under the Threatened and Endangered Species Act, volume sold was 53.6 MMBF. In 1990 sale volume was 52.0 MMBF. Volume sold in FY 1991 was 27.0 MMBF.

Under the previous timber management plan, current annual net growth was 64 MMBF per year, which was lower than the potential yield of 85.5 MMBF. On the Mendocino N F., most stands on the forest are understocked, consequently their growth rates are low compared to fully stocked managed stands For the previous Timber Management Plan the long term sustained yield capacity was 131 1 MMBF per year.

At the national level, long-term demand for timber products is expected to increase at a greater rate than projected supply, causing an increase in real timber prices during the planning period. Programs to increase net annual growth provide an opportunity to meet projected rises in timber demand. In most cases current growth of timber on National Forests is below the potential which could be achieved under management

Locally, the annual volume offered for sale each year by the Forest is purchased by a number of mills in northern California. In 1986, 20 firms held 67 timber sale contracts on the Forest. As of the end of calendar year 1990, 19 firms held 33 contracts. Timber volume under contract has declined significantly. In 1986 uncut volume under contract was 411 million board feet on June 30. In contrast, un-cut volume under contract was 48 million board feet at the end of calendar year 1990 and 2 million board feet at the end of 1994. The decline reflects the reduction in the Forest timber sale program caused by spotted owl concerns rather than lack of demand. One indicator of demand is the price paid for timber sales With some exceptions, timber offered for sale by the Forest has been purchased at bid rates which exceed advertised rates. Generally, the amount of timber purchased has reflected only the amount the Forest was able to offer for sale under prevailing resource and budget constraints, rather than the total amount demanded.

Generally, the timber management program on the Forest has been cost efficient In 1987, the Forest Service implemented a detailed accounting system in which all timber sale costs and revenues are recorded and summarized in an annual report. In each year beginning with 1987 through 1990, timber program revenues exceeded expenditures by an average of $3.6 million dollars per year. However, measures implemented to protect ecosystems structures, functions, and processes may require approaches which increase timber sale costs. Since the listing of the northern spotted owl as an endangered species, timber sale costs have increased as timber sales were designed and redesigned to implement complex and changing requirements for the owl's protection.

Table 3-5 displays the distribution of the major timber types by stocking level and slope class for the tentatively suitable landbase.

Table 3-5
DISTRIBUTION OF MAJOR TIMBER TYPES BY
STOCKING LEVEL AND SLOPE CLASS

Slope Class/Timber Type	Acres of Tentatively Suitable Timberland	Percent of Total
Slopes less than 35%		
•Mixed Conifer		
Poorly Stocked	47,200	23%
Well Stocked	18,370	9%
Plantations	17,290	8%
•Conifer-Hardwood		
All Stocking Levels	37,130	18%
•Red Fir		
All Stocking Levels	2,970	1%
•SUBTOTAL.....	122,960	59%
Slopes greater than 35%		
•Mixed Conifer		
Poorly Stocked	27,860	13%
Well Stocked	26,860	13%
Plantations	5,720	3%
•Conifer-Hardwood		
All Stocking Levels	22,820	11%
•Red Fir		
All Stocking Levels	2,180	1%
•SUBTOTAL.....	85,440	41%
Forest Totals		
•Mixed Conifer		
Poorly Stocked	75,060	36%
Well Stocked	45,230	22%
Plantations	23,010	11%
•Conifer-Hardwood		
All Stocking Levels	59,950	29%
•Red Fir		
All Stocking Levels	5,150	2%
•TOTAL.....	208,400	100%

A complete discussion of the advantages and disadvantages of the even-aged and uneven-aged management systems can be found in Appendix F of the Final Environmental Impact Statement, Major Silvicultural Systems and Their Application

During the energy shortage caused by the interruption of foreign oil imports in the mid-1970's, there was a strong interest in developing alternative energy sources Utilization of wood residues and other woody material from forest lands was one of the alternatives which received attention In the early 1980's private interests were investigating the feasibility of constructing electrical generating plants capable of using wood biomass from forest land sources including the Mendocino National Forest. When normal oil supplies resumed and energy prices fell, wood energy was no longer cost competitive with other fuels, and interest in wood-fired electrical generating plants declined

The Forest does, however have the potential to provide wood biomass for energy generation should the need arise. The biomass potential for this purpose could come from three general sources: 1) woody residues from timber harvests and precommercial thinnings, 2) harvest of hardwoods and non-commercial conifers such as knobcone pine, 3) woody brush species found mainly in the chaparral type The total estimated sustained annual production potential in dry tons for each of the preceding categories is shown in the following table.

Residues from timber harvests and thinnings	40,420 tons
Hardwoods and non-commercial conifers	53,654 tons
Chaparral	40,433 tons
Total	134,507 tons

The figures above are an estimate of the amount of material potentially available with current road access There are other considerations which could cause the amount actually available to be significantly less. Riparian reserve standards and guidelines would reduce the area available for this type of activity. Another consideration is the need to maintain an adequate level of dead woody material for wildlife habitat, and where necessary, to furnish ground cover to prevent soil erosion Harvest of hardwoods and non-commercial conifers may also be limited by wildlife habitat needs, and these vegetation types are not included in the suitable landbase for this LRMP. Any plans to provide biomass for energy production will be subject to a site specific environmental analysis which would deal with these, and other resource management needs

VISUAL RESOURCES

Many areas of the rugged North Coast Range have long been appreciated for their attractive scenery. Approximately half of the Snow Mountain Wilderness was managed as a Back Country Scenic Area and the balance was managed as a Scenic area prior to its recent designation as a Wilderness. The Middle Fork of the Eel River was designated a Wild and Scenic River in 1981.

The priority given to visual qualities of attractiveness, naturalness, and open space is of concern to both the public and Forest managers. The objective of visual resource management is to manage all Forest lands so as to obtain the highest possible visual quality commensurate with other resource uses and benefits. Intensive visual resource management can accommodate a fairly high level of both commodity and amenity values production.

The Forest uses an analytical model, the Visual Management System, to set Visual Quality Objectives (VQOs) for Forest management. Initial VQOs define theoretically acceptable limits of visual modification for particular areas. The Forest lands are classified according to the degree of inherent scenic attractiveness, visual variety class, and the level of user sensitivity to modification, sensitivity level. A matrix of these factors identifies VQOs appropriate to specific areas Further evaluations determine the land's

existing visual condition and physical capability to absorb modification, its Visual Absorption Capability. During the formulation of alternatives these parameters are used to develop VQOs for different alternative themes.

Table 3-6
VISUAL VARIETY CLASS, SENSITIVITY LEVEL, AND VISUAL ABSORPTIVE CAPABILITY

VARIETY CLASS		SENSITIVITY LEVEL		VISUAL ABSORPTION CAPABILITY	
Distinctive (A)	13%	Most	26.4%	High	34.4%
Common (B)	65%	Moderate	53.2%	Moderate	34.6%
Minimal (C)	22%	Least	20.4%	Low	31.0%

Variety Class A is a distinctive landscape which generally is the type of landscape photographed by Forest visitors Variety Class B is a pleasing but not unusual landscape and represents common images of the forest. Variety Class C is rather monotonous.

Sensitivity Level is a measure of people's concern for scenic quality with level 1 being the highest. The Sensitivity Level is determined by the type, purpose, and amount of use, as well as how clearly alterations are visible by distance zone, the seen area, what is seen, and how closely it is viewed.

Visual Absorption Capability is a measure of an area's capability to meet visual quality objectives, based upon physical characteristics and capability to absorb alterations.

A Visual Quality Index (VQI) is a relative scale which reflects both the amount of landscape modification and the inherent scenic quality of the Forest. Research on public preferences indicate higher values are given to more natural appearing views, and to scenery in the higher variety classes. The VQI for the Mendocino National Forest based on an inventory made in 1989 is 47.1. If the entire Forest were without alteration, the VQI would be 54.4. If the entire Forest were managed to a level where every acre met a VQO of maximum modification, the VQI would drop to 23.3.

The VQI calculated in 1981 for the current landbase of 894,400 acres was 48.6 The current 47.1 index rating indicates that, overall, the natural landscape remains fairly dominant. However, management activities in the 1980's resulted in a decline in the visual resource. Approximately 50% of the decline in the 1980's is attributable to the 1987 fires and subsequent salvage logging activities.

Maintaining attractive forests and mountains in their naturally appearing state is fundamental to providing recreation opportunities on the Forest. Recreation use of the Mendocino is expected to continue increasing as a result of population growth in urban areas close to the Forest and because of the popularity and variety of recreation activities which the Forest can accommodate. As both the extent and intensity of use increases so does the demand for a naturally appearing scenery.

The following table displays the results of a 1989 inventory of the existing condition of visual resources on the Forest.

Table 3-7
1989 INVENTORY OF EXISTING VISUAL CONDITION

VISUAL CONDITION CLASS	ACRES
VC I UNTOUCHED	221,000
VC II UNNOTICED	291,000
VC III MINOR DISTURBANCE	194,000
VC IV DISTURBANCE	157,000
VC V MAJOR DISTURBANCE	29,800
VC VI DRASTIC DISTURBANCE	1,600
TOTAL FOREST ACRES	894,400

WATERSHED

The Mendocino National Forest is divided into the Sacramento River and the Eel River drainages. With the exception of some portions of the Eel River drainage, the amount of water produced on the Forest is generally in excess of downstream demands, or present downstream storage capability. Watersheds contributing to the Sacramento River drainage are Thomes Creek, Stony Creek, Grindstone Creek, Middle Creek, Cache Creek, and Elder Creek. Most of the runoff flows into reservoirs where a primary use is irrigation Middle Creek flows into Clear Lake and then into Cache Creek. The North Fork of Cache Creek flows into Indian Valley reservoir. Stony Creek feeds East Park and Stony Gorge reservoirs and then Stony Creek converges with Grindstone Creek to flow into Black Butte reservoir. Thomes and Elder Creeks are free flowing streams that enter the Sacramento River on the northeast side of the Forest. This water is mainly used for irrigation and recreation. The Main Eel River and the Middle Fork of the Eel River are the major tributaries of the Eel River drainage, all of which support anadromous fisheries.

Demand for water flowing off the west side of the Forest is increasing. Water in the Eel River is needed for instream uses such as anadromous fish and recreation. Other Eel River water is diverted via the tunnel at Van Arsdale into the Russian River system where it is used for recreation, flood control, and water storage at Lake Mendocino. Subsequent reservoir releases are used for irrigation, domestic, and recreation purposes. The various water demands and flow releases were determined during the recent relicensing of Scott Dam by the Federal Energy Regulatory Commission.

With current demands for water, the entire Forest can be considered to be a domestic watershed even though use in some areas, such as Sacramento, is far removed from the Forest. Although there are no agreements between the Forest Service and any domestic water provider, management is directed toward protection of water quality through the implementation of approved "Best Management Practices", riparian reserve standards and guidelines, and through on-site investigation of watershed conditions to identify additional mitigation measures, if needed to meet aquatic conservation strategy objectives, for Forest Service activities through the environmental analysis process. At least 95% of the water yield meets state water quality standards. The balance of the water not meeting standards is primarily the result of major rain events and the natural instability of the watersheds. Water runoff from some roads during heavy rain storms may not meet water quality standards during the storm.

Potential water yield increases associated with vegetation manipulation is estimated to be less than 5% where the streams leave the Forest boundary. There are high water yields on-site, but once the water is routed downstream, the increased yields become almost unmeasurable. Much of the increased water yield that leaves the Forest during the winter and spring is not utilized because of insufficient downstream storage capacity in existing reservoirs. Current average annual water yield from the Forest is estimated at 3,474,300 acre feet Of the total runoff, approximately 1,025,700 acre feet are actually utilized for domestic and irrigation purposes.

The primary surface water quality problem on the Forest is sediment. Sediment loads from the Forest are high during the winter due to the unstable nature of Forest soils, management activities, and large

runoff events Summer stream flows are low and clear. In the mid 1970's, stream channel condition surveys were completed for the major streams and their main tributaries. Most stream channels on the Forest were in the "fair" stability class with a few in the "poor" class and a few, in the southern part of the Forest, in the "good" stability class.

In the early 1990's, annual stream surveys were resumed on the forest for the purpose of updating channel condition and inventorying fish populations and habitat. The results from five years of survey show that overall channel conditions have improved since the 1970's.

The effects of turbidity in Lake Pillsbury and Lake Mendocino and on fisheries in the Eel River are a primary concern in the Eel River drainage. In addition, high water temperature is a problem for fish in the main rivers and streams on the Forest. Most of these streams are in open brushland canyons where vegetation is too short to shade the water. Water from the side streams is much cooler than the main streams as they are well shaded by trees.

Water quality will be maintained and improved through the application of state certified and EPA approved Best Management Practices (BMP) for controlling non-point sources of pollution and riparian reserve standards and guides. Methods and techniques for applying the appropriate BMPs are identified during on site investigation of Forest projects that have the potential to degrade surface water quality. More detailed discussions of BMPs and the implementation process are presented in Appendix G of the Forest Plan.

There has been a growing concern for the cumulative impact of timber harvest, road construction, and prescribed burning on the condition of Forest watersheds. The wildfires which occurred during the summer of 1987 have intensified this concern, particularly within the Lake Pillsbury Basin. A cumulative watershed analysis completed following the fires indicates that 23 of the 226 subwatersheds on the Forest are currently at or above the "Threshold of Concern." These subwatersheds are located within portions of the Middle Fork of the Eel River, Grindstone Creek, Thomes Creek, Black Butte River, and the Lake Pillsbury Basin. Additional land disturbing activities within these areas must be carefully examined to assure that the recovery of these watersheds is not further impaired.

The cumulative watershed effects analysis also showed that each of the three major drainages within the Lake Pillsbury Basin were over threshold. The analysis further showed that the Basin was expected to return to within threshold levels in 1992.

Emergency burned area rehabilitation measures were implemented immediately following the fires. These measures included repairing suppression related damages, grass seeding on areas previously covered by chaparral and along major stream channels, seeding and mulching other sensitive areas such as landslide areas, installing stream grade stabilizers and check dams, and improving road drainage to accommodate the anticipated increase in run-off from the burned area.

These emergency rehabilitation measures were intended to help reduce soil loss and to protect downstream values until longer term recovery of the watersheds is achieved. To assist with the long term recovery of the area, a burned area recovery plan was developed to identify additional watershed improvements designed to help speed the total recovery of the affected lands within the Basin. Implementation of this plan was undertaken during 1988 with completion of work in 1991.

Salvage of much of the fire killed timber was also undertaken following the fires While harvesting operations have resulted in additional short term disturbance to the area, the reforestation of the area funded through salvage sales is making a significant contribution to the long term recovery of the burned watersheds.

Watershed rehabilitation and recovery measures were also effective in establishing vegetation on the barren slopes in the burn area. Approximately 80% of the burned area has been stabilized with vegetative cover, but deep rooted tree species are needed for long term stability on the high intensity burned areas. Roads that were not needed for future timber management were ripped and seeded to

grass while drainage was improved on other roads. Structures designed to reduce channel down-cutting were built in stream channels The effectiveness of these erosion control structures is apparent when compared to untreated stream channels.

WILD AND SCENIC RIVERS

In 1981 a 24-mile stretch of the Middle Fork of the Eel River was designated as a Wild River under the National Wild and Scenic Rivers Act. The designated portion of the river within Forest Service jurisdiction extends from the National Forest boundary to approximately one mile north of Fern Point. The Middle Fork of the Eel provides habitat for the Forest Service sensitive summer run steelhead as well as the winter run steelhead, spring run Chinook salmon, and resident rainbow trout. The presence of this sensitive anadromous fishery is the outstandingly remarkable value that qualified this river for protection under the Wild and Scenic River Act. Other notable values for this river include its free flowing nature, the general inaccessibility except by trail, and the primitive nature of the shorelines.

Management of the Middle Fork of the Eel River is directed toward the protection of the values that led to its designation. The maintenance of the anadromous fisheries resource, particularly the summer run steelhead, receives special management consideration in this area. The Summer Steelhead Management Plan developed by the Mendocino National Forest and the California Department of Fish and Game in 1980 provides the basis for management direction for the fisheries resource.

Most of the Middle Fork of the Eel River is contained in deep, narrow canyons with numerous large, deep pools. The river cuts through highly unstable land forms creating a steep walled canyon characterized by landslides.

An analysis of all rivers and streams on the Forest has been completed to determine if additional rivers or streams possess the qualities which would make them eligible for consideration for inclusion in the National Wild and Scenic Rivers System. As a result of this analysis, six rivers were determined to possess outstandingly remarkable characteristics and therefore eligible for further consideration. The eligible rivers and streams are: the Middle Fork of the Eel River above the portion currently included in the Wild and Scenic River System, Balm of Gilead Creek, Black Butte River, and segments of Cold Creek, the Middle Fork of Stony Creek, and Thomes Creek.

Middle Fork of the Eel River

This segment of the Middle Fork of the Eel River above the portion of the River currently included in the Wild and Scenic River System, is located entirely within the Yolla Bolly-Middle Eel Wilderness. It includes the 14-mile stretch of the River from approximately one mile above Fern Point to its headwaters east of The Knob This section of the River possesses the same characteristics as that portion already included in the Wild and Scenic River System, and it has also been identified by the Department of the Interior as having potential for inclusion in the Wild and Scenic River System The outstandingly remarkable characteristic found in this segment include the presence of the furthest upstream habitat for breeding populations of anadromous fish. The potential classification for this river segment is "Wild."

Balm of Gilead Creek

Balm of Gilead Creek is located entirely within the Yolla Bolly-Middle Eel Wilderness It originates below Vinegar Peak and flows approximately nine miles to its junction with the Middle Fork of the Eel River. This creek contributes substantially to the flow of the Middle Fork of the Eel River. The anadromous fisheries and scenery in and along Balm of Gilead creek are its outstandingly remarkable values The potential classification for this tributary to the Middle Fork of the Eel River is "Wild."

Middle Fork Stony Creek

The eligible segment of the Middle Fork of Stony Creek reaches from its origin in the Snow Mountain Wilderness approximately 16 5 miles around the northern side of Snow Mountain to the mouth of the canyon, approximately 1/3 mile below the Wilderness boundary. The end of the eligible segment corresponds to the private property boundary at the mouth of the gorge. The outstandingly remarkable characteristics along this portion of the river are the unusual geologic formations and the scenic beauty. The potential classification for this segment of the river is "Wild."

Black Butte River

This river is approximately 24 miles long and extends from the private lands at The Basin to the National Forest boundary approximately 1/2 mile above its confluence with the Middle Fork of the Eel River. The Black Butte River possess outstandingly remarkable fisheries and heritage resources values. The potential classification under the Wild and Scenic River Act for this river is "Wild."

Cold Creek

The eligible segment of this stream extends approximately six miles upstream from its confluence with the Black Butte River to the point where it enters private land. The outstandingly remarkable characteristics found along this segment of the stream include the highly attractive scenery, especially in the Chimney Rock area, and its anadromous fishery. Cold Creek, with its unusually large flows, contributes significantly to the habitat necessary for survival of juvenile fish in the Black Butte River. The potential classification for this tributary to the Black Butte River is "Wild."

Thomes Creek

The eligible segment of this creek is approximately 11 miles in length and extends from approximately 1/2 mile below The Slab, to the National Forest boundary. The outstandingly remarkable characteristics of this segment are based on the geologic formations and the unique scenery these formations create. The most notable feature on the creek is the Gorge area near the Forest boundary. This sheer walled, deep pooled canyon resembles formations that are more common in the arid environments of the southwest. The warm waters of the Gorge are dominated by Ptychocheilus grandis which collect in the pools in summer The potential classification for this segment is "Wild "

WILDERNESS RESOURCE

With the addition of approximately 25,000 acres of land within the Mendocino National Forest to the Yolla Bolly-Middle Eel Wilderness, and the designation of the 37,000 acre Snow Mountain Wilderness with passage of the California Wilderness Act of 1984, the total wilderness acreage within the Forest now stands at approximately 137,800 acres.

The 156,000 acre Yolla Bolly-Middle Eel Wilderness lies between the north and south Yolla Bolly Mountains in the rugged country of the headwaters of the Middle Fork of the Eel River. The Wilderness includes portions of the Mendocino, Shasta-Trinity, and Six Rivers National Forests, as well approximately 7,400 acres administered by the Bureau of Land Management (BLM). The BLM portion of the Wilderness is currently managed by the Mendocino National Forest under a memorandum of understanding. The BLM has recommended the transfer of these 7,400 acres, plus an additional 2,000 acres designated as a Wilderness Study Area, to the Mendocino National Forest. This recommendation is documented in the Record of Decision for the Arcata Resource Area Resource Management Plan and Environmental Impact Statement, April 1992

Due to its relatively large size and the rather limited use of the area, the Yolla Bolly-Middle Eel Wilderness offers the opportunity to enjoy a quality wilderness experience with a high degree of solitude within the interior portions of the area.

The Snow Mountain Wilderness lies at the southern tip of the North Coast Range of California and is readily accessible from the Sacramento, San Francisco, and north coast metropolitan areas. This Wilderness is accessible earlier in the spring and later in the fall than most other areas in Northern California with similar proximity to large population centers. The area is well suited to visits of only one or two days duration, as well as longer stays These factors are likely to make this area more popular than the larger Yolla Bolly-Middle Eel Wilderness to the north.

Some parts of Snow Mountain, such as the Middle Fork of Stony Creek, provide outstanding opportunities for isolated recreation However, because the unique features of this rather small wilderness are concentrated in the crest areas, opportunities for solitude will decrease rapidly with increased recreation use. The fact that the Wilderness consists mostly of one mountain makes users susceptible to impacts from outside activities, particularly in the high crest areas. For example, users in the higher crest areas will be subjected to a variety of visual impacts including smoke columns from agricultural burning in the Sacramento Valley, the electronic towers on St. John Mountain, road cuts and fills, and timber harvest activities on adjacent lands.

All or portions of three grazing allotments lie within the Mendocino National Forest portion of the Yolla Bolly-Middle Eel Wilderness, and one allotment lies within the Snow Mountain Wilderness. Conflicts between grazing and other wilderness uses are primarily with primitive recreation around riparian areas. The dry landscape forces both recreationists and cattle to concentrate at the few accessible water sources.

WILDLIFE AND FISH

All lands within the Forest provide cover, food, space, and water for wildlife and fish. Some species occur throughout the Forest in a wide variety of habitats while others are restricted in distribution by specific habitat requirements. Approximately 329 vertebrate wildlife species are either known to be present or have the potential to occur within this Forest. These include 16 amphibian, 21 reptilian, 70 mammalian, 204 avian, and 18 fish species.

Wildlife and fish populations are managed by the Department of Fish and Game while the Forest Service is responsible for managing the habitat which they are dependent upon Wildlife and fish issues are, therefore, addressed in terms of habitat management.

The main objective of the Mendocino's habitat management program is to maintain or enhance viable populations of existing wildlife and fish species. To ensure that viable populations of all species occurring in this Forest are maintained, certain species are designated as "management indicator species" (MIS) to function as barometers for wildlife communities. These species were selected because: 1) they are believed to represent the vegetation types, successional stages, and special habitat elements necessary to provide for viable populations of all species in the Forest; and 2) their population changes are believed to indicate or represent the effects of management activities on wildlife and fish. These MIS include species designated as sensitive by the U.S. Forest Service, species of local interest, and species listed as threatened or endangered by either the Federal or State government. One species listed as threatened, the valley elderberry longhorn beetle, has not been selected as an MIS This beetle occurs at the Lake Red Bluff Recreation site, a riparian area in the central valley which is not representative of most riparian habitat found in this Forest. Another species limited to the Red Bluff site is the Sacramento Splittail, currently proposed for Federal listing as threatened

Wildlife

Thirteen wildlife species have been selected as management indicator species for this Forest. These species and an estimate of current habitat supply for them in the Forest is listed in Table 3-8. The habitats or specific habitat elements represented by the MIS are listed in Table 3-9 These are estimates of the extent of high and medium quality habitat capable of supporting viable populations of MIS. These estimates are consistent with habitat parameters presented in the habitat capability models, they reflect Forest inventory data on vegetative types and successional stages, and they incorporate site-specific information wherever possible.

Fisheries

The Mendocino National Forest supports an extensive resident trout fishery and more limited anadromous and warm-water fisheries. Rainbow trout are found in nearly all portions of the 400 miles of perennial streams and in over 2,000 acres of lakes and ponds. Anadromous species, steelhead and salmon, are found in river systems on the west side of the Forest. There are about 17 miles of salmon streams and 80 miles of steelhead streams. Table 3-19 of the Land and Resource Management Plan Environmental Impact Statement describes the current habitat quality for rainbow trout and anadromous fisheries.

The warm-water fishery on the Forest is becoming increasingly more important. The recently-introduced largemouth bass population is expanding and gaining recognition in the angling community. The warm-water fishery represents an estimated 12% of the total Fish User Days attributable to the Forest.

Issues concerning the fisheries resource are for the most part concerned with adverse impacts of timber and range management, road construction, and small hydroelectric generation projects. Several large hydroelectric projects and other water diversions have been proposed for areas adjacent to the Forest which could affect the Forest fisheries by flooding streams or by blocking the migration of anadromous fish In addition, non-native fish are an increasing concern, as they may monopolize available habitat and/or cause direct mortality of native species.

It is critical that habitat requirements for trout and anadromous species be taken into account in activities that may affect habitat quality. This is particularly important for the anadromous fisheries in the Middle Fork of the Eel River, Black Butte River, and Thatcher Creek watersheds. Habitat improvement is dependent primarily on improvement of the watershed condition as a whole. This includes ensuring adequate shading of streams through vegetative cover, maintaining water quality (including summer temperatures and levels of siltation), stream channel stability, and keeping streams clear of unnatural debris.

Management measures include riparian reserve standards and guides, Best Management Practices, key watershed standards and guides, and the aquatic conservation strategy objectives.

Table 3-8
CURRENT ESTIMATED SUPPLY OF HIGH AND MEDIUM QUALITY HABITAT FOR MANAGEMENT INDICATOR SPECIES (MIS) WITHIN THE MENDOCINO NATIONAL FOREST.

MIS	HABITAT (acres)	
Acorn Woodpecker	251,365	"
Bald Eagle	5 sites	
Black-tailed Deer	312,535	" (forage)
	452,103	" (cover)
California Thrasher	189,798	"
Douglas Tree Squirrel	145,139	"
Fisher	201,043	"
Goshawk	171,435	"
Marten	104,037	"
Peregrine Falcon	8 sites	
Pileated Woodpecker	139,867	"
Northern Spotted Owl	90,506	"
Tule Elk	177,360	" (forage)
	546,980	" (cover)
Western Gray Squirrel	203,099	"

Table 3-9
MANAGEMENT INDICATOR SPECIES - ECOLOGICAL ELEMENTS REPRESENTED

SPECIES CATEGORY	ECOLOGICAL ELEMENTS
Threatened/Endangered	
Bald Eagle	Riparian
Peregrine Falcon	Riparian, Lithic Areas
Northern Spotted Owl	Old Growth, Snags, Dead & Down
Sensitive	
Fisher	Old Growth, Snags, Riparian, Dead & Down
Goshawk	Old Growth, Snags, Riparian, Dead & Down
Marten	Old Growth, Snags, Riparian, Dead & Down
Harvest	
Black-Tailed Deer	Riparian, Hardwoods, Meadow, Brush Field
Douglas Tree Squirrel	Snags, True Fir
Western Gray Squirrel	Snags, Hardwoods
Special Interest	
Tule Elk	Riparian, Hardwoods, Meadow
Maintenance	
Acorn Woodpecker	Snags, Hardwoods
Pileated Woodpecker	Old Growth, Snags, Dead & Down
California Thrasher	Brush Field